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ABSTRACT

The 10-volume "Health Facts" series is intended to supplement health education curricula and provide a handy reference for individuals who would like additional background information on particular health topics. The emphasis is placed on topics and examples relevant to youth of middle and high school age. The five sections in this book provide teachers with basic facts about the public health approach to injury prevention. The book includes information about those most at risk of injury; the costs of injury; the role alcohol and other drugs play in injuries; unintentional injuries, which have traditionally been called "accidents"; and intentional injuries due to violence and suicide. An easy to read reference format offers clear, concise data intended to familiarize educators with the most important facts about the issues and concerns. A glossary, a list of resources, and 22 references complete the volume. (LL)

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Injury and Violence Prevention

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Injury and Violence Prevention

HEALTH FACTS

Lucas Stang

and

Kathleen R. Miner, PhD, MPH, CHES

ETR ASSOCIATES
Santa Cruz, California
1994

ETR Associates (Education, Training and Research) is a nonprofit organization committed to fostering the health, well-being and cultural diversity of individuals, families, schools and communities. The publishing program of ETR Associates provides books and materials that empower young people and adults with the skills to make positive health choices. We invite health professionals to learn more about our high-quality publishing, training and research programs by contacting us at P.O. Box 1830, Santa Cruz, CA 95061-1830, 1-800-321-4407.

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Editor's Preface

Everyone agrees that children and youth need to learn skills for establishing good health habits. Most people also agree that the earlier health education starts, the better its success.

The books in the *Health Facts* series were written to provide the background information educators need as they teach young people about health. The information is provided in a way that makes it easy for educators to familiarize themselves quickly with the most important facts about a health topic.

Rather than providing indepth information in each content area, the books offer guidance to the balance of emphasis. They help educators approach health topics with confidence and focus health content as they teach.

Titles in the Series

Each volume in the series contains information about a different content area. The following ten books comprise the series:

- *Disease Prevention*
- *Drug Use Prevention*
- *Environmental and Community Health*
- *Fitness*
- *HIV Prevention*
- *Injury and Violence Prevention*
- *Mental and Emotional Health*
- *Nutrition*
- *Sexuality*
- *STD Prevention*

Contributors

These books were written by the following talented and knowledgeable professionals in collaboration with ETR Associates' staff.

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Lucas Stang has a background in biology and health, with graduate work in science communication. He has been writing health materials for ten years. He recently served as wellness coordinator for the International School in Manila, Philippines, where he developed a kindergarten through grade 12 health curriculum and taught high school health. He has also taught human sexuality at the junior college level.

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Rama Khalsa, PhD, is a clinical psychologist and the director of the Santa Cruz County Department of Mental Health in Santa Cruz, California.

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Netha Thacker
Project Editor

Introduction

If a disease were killing our children in the proportions that injuries are, people would be outraged and demand that this killer be stopped.
—C. Everett Koop, MD

Unintentional and intentional injuries have become the biggest health problem in the United States. More people die or are disabled by injuries than by all diseases combined. Every year, thousands of American children and youth are killed or disabled by injuries that could have been prevented. Injuries account for 80% of all deaths for youth ages 15 to 19.

Many of these injuries are related to motor vehicles, bicycles, sports and recreation. Others are the result of violent acts, including physical and sexual abuse and gang wars, or suicide. Violence has become epidemic in American society, and no one is immune. Suicide is the second leading cause of death in the United States among people ages 15 to 24.

The cost to American society of these injuries and this loss of life is high. It can be measured not only in terms of grief and

pain, but also in health care costs. The most tragic cost is the loss of the energy and productivity that these injured youth could have contributed to their communities.

Preventing injuries has become the number one public health concern. This represents a relatively new focus for public health practitioners, who have traditionally been concerned primarily with infectious and chronic disease.

Injuries have long been considered to be the result of chance, or "accidents." However, the science of injury prevention has shown that most injuries are not random events and that the same epidemiological tools used to eradicate disease can effectively prevent injuries.

Educators have an important role to play in coping with the injury epidemic. Children and youth need education about injury prevention. They also need a healthy school environment, one that discourages the use of harmful substances, encourages school attractiveness and eliminates hazards that cause injury.

Schools and communities need to work together to create policies that assist in arresting the growing incidence of violence. Troubled children must be identified and referred to appropriate resources before they seek to solve their problems with suicide or other deadly means.

Injury and Violence Prevention: Health Facts provides an overview of the public health approach to injury prevention. It includes information about those most at risk of injury, the costs of injury, and the role alcohol and other drugs play in injuries. It deals with both unintentional injuries, which have traditionally been called "accidents," and intentional injuries, those due to violence and suicide.

The Role of Education

The research conducted during the past thirty years has offered greater insight into the causes of chronic disease, injury and violence. This research indicates that these condi-

tions are primarily caused by human behavior. What people do or do not do places them at risk for acquiring chronic diseases or experiencing serious injuries.

The behavioral components associated with the modern pattern of disease and injury create the potential for preventing most of these health problems by changing behavior. Comprehensive health promotion and education programs provide the foundation for modern disease prevention.

Ideally, the health promotion and education process begins early. Early education provides the opportunity to reach children and youth before they begin to adopt the behaviors associated with chronic disease, sexually transmitted disease, drug use, injury and mental illness. Through a systematic review of health promotion and disease prevention, educators can help children and youth enhance their health while helping them avoid illness and injury.

The *Health Facts* Series

Injury and Violence Prevention: Health Facts is part of a ten-volume series designed to provide clear, concise content and to be complementary to curricula published by ETR Associates and other health education curricula. Other volumes in this series that relate to injury and violence prevention include *Disease Prevention* and *Mental and Emotional Health.*

Classroom teachers, counselors, school nurses and others are often called upon to become instant health educators. They may be asked to answer questions, present information and lead discussions on health topics in which they feel unprepared.

The *Health Facts* series is designed to be a handy reference for individuals who would like additional background information on particular health topics. The emphasis is on topics and examples that are relevant to youth of middle and high school age. By design, the presentation of each of the topics is brief.

References and resource listings direct the reader to additional relevant information. All of the volumes in this series offer a user-friendly format that is easy to read and factual.

The volumes discuss health and disease in straightforward language. Educators may want to review each volume for its appropriateness for their school and community before assigning the books for student use.

This book and the rest of the series can serve as useful additions to classroom, school or library collections. Health care professionals may choose individual volumes or the entire series as a convenient reference for patient education programs or as reading material in office waiting rooms. Individuals may find the series useful as a home reference as well.

What Is Injury Prevention?

Myth: Accidents are just that; there's nothing that can be done.

Fact: Accidents have generally been viewed as random, uncontrollable events. But most of the time that's not true. Events that cause injury are often predictable and preventable.

Public health policy and practice has always emphasized prevention as the foundation for a long, healthy life. Traditionally, prevention efforts were aimed at infectious diseases, because they were responsible for the greatest toll in human lives. Immunizations and improved treatments, however, virtually ended these threats, and efforts shifted to the prevention of chronic, noncommunicable diseases such as cancer and cardiovascular problems. Standard public health interventions have had extraordinary success in bringing these killers under control.

Today, unintentional and intentional injuries are the greatest threats to productivity and life among otherwise healthy young people. Injury is now recognized as a public health problem, which can be understood and controlled with the same measures as those directed against disease.

Injury and "Accidents"

People who are hurt or killed on the job, in their homes and on the nation's roads and highways are often called *accident* victims. The term *accident* implies that an event is random and uncontrollable. But in fact, injuries rarely result from random chance. They are the predictable results of circumstances that can be foreseen and often prevented.

Defining Injury

The word injury is derived from the Latin term *in juris*, which translates as "not right." The National Committee for Injury and Prevention Control has defined injury as "unintentional or intentional damage to the body resulting from acute exposure to thermal, mechanical, electrical, or chemical energy or from the absence of such essentials as heat or oxygen."

Injuries from acute exposure to energy include:

- falls
- motor vehicle crashes
- firearm injuries
- violence
- sports
- fires and burns
- poisoning
- electrocution
- radiation

Fatal Injuries

Cause	Number
Motor vehicle, total	48,024
occupant	37,063
pedestrian	7,219
motorcyclist	2,837
bicyclist	859
other	46
Firearm, total	35,303
unintentional	1,501
suicide	18,181
homicide	13,666
other/unknown	1,955
Poisoning, total	9,782
unintentional	5,353
suicide	3,133
other/unknown	1,296
Nonfirearm suicide	12,226
Nonfirearm homicide	8,118
Falls	12,096
Drowning	4,966
Residential fires	4,088
Other	18,672
Total	**153,275**

Based on 1988 statistics from the National Center for Health Statistics.

Injuries resulting from lack of essentials include:

- asphyxiation
- drowning
- hypothermia
- frostbite

Injury may be intentional—for example, murder, abuse or suicide—or unintentional, as is the case with burns, falls and most automobile crashes.

Alcohol and Injury

The use of alcohol is a contributing factor across all categories of injury, both intentional and unintentional.

- Nearly half of all fatally injured drivers are legally drunk when they crash.
- More than a third of all pedestrians killed by cars were drunk themselves.
- At least half of all murderers and their victims have been drinking.
- Violence is common in places where alcohol is consumed.
- About half of all residential injuries in people 15 years and older are related to alcohol consumption.
- Drinkers have 10 times greater risk of burns and 16 times greater risk of falling than non-drinkers.
- Significant numbers of spousal battering cases involve alcohol use.
- Alcohol is widely associated with rape; perhaps as many as half of all rapists are drinking before they commit the crime.
- Excessive use of alcohol is one of the warning signs for suicide risk.

Who's at Risk?

Every day, more than 170,000 men, women and children are hurt seriously enough to require medical care. Nonfatal injuries will send one in three Americans to the doctor or make them unable to perform their normal activities sometime in their life.

Injury is the single greatest killer of Americans between ages one and 44. Approximately 400 Americans die from injuries each day. Over the course of an average year, that's a loss of 146,000 productive lives. More than one-third of these deaths are due to homicide or suicide.

The Toll on Youth

Children and youth are the victims of injury more often than any other population group. According to the National Safety Council, of the 62.1 million injuries reported in 1987 in the United States, about 44% involved people under age 25.

One child in nine will be hospitalized for a nonfatal injury before the age of 15. Injury is the major cause of childhood mortality, causing more deaths than all childhood diseases combined.

Unintentional injuries claim more lives in the 15-to-24-year-old age group than all other causes combined. Annually, these premature deaths cost more in terms of potential years of life lost than the toll for all forms of cancer and cardiovascular disease combined.

THE FINANCIAL BURDEN

The cost of injuries in 1987 was estimated at $133.2 billion. Motor vehicle injuries alone are more costly than heart disease and twice as costly as stroke.

Adolescents are at high risk for injury because of attitudes and behaviors common to this age group. Typically, teenagers are strong, vigorous and full of a sense of their own power. These feelings lead them to believe they are invulnerable, that bad things only happen to others. When these beliefs are combined with greater opportunity for experimentation and independence, adolescents are likely to encounter situations with high potential for injury.

U.S. Childhood Injury Deaths, Percentage by Cause, 1980–1985

Under age 1		Ages 5–9	
Homicide	17%	Motor vehicles	48%
Motor vehicles	16%	Drowning	14%
Aspiration	16%	House fires	12%
Suffocation	14%	Homicide	7%
House fire	10%	Other	19%
Drowning	7%		
Other	20%		

Ages 1–4		Ages 10–14	
Motor vehicles	31%	Motor vehicles	45%
Drowning	19%	Drowning	12%
House fire	18%	Homicide	8%
Homicide	10%	Suicide	7%
Other	22%	Firearm (unintentional)	6%
		Other	22%

Source: A. Waller et al. 1989. Childhood Injury Deaths: National Analysis and Geographic Variations. *American Journal of Public Health* 79 (3): 311. © 1989 by the American Public Health Association. Reprinted with permission.

Public Health Approaches to Injury Prevention

The goal of public health has always been to reduce premature mortality among otherwise healthy people. The public health emphasis on prevention lays the foundation for long, healthy, injury-free lives. Public health practitioners and agencies can apply the same methods used to control disease to understanding and preventing injuries.

The public health approach includes the following stages:

- collecting data
- identifying risk
- testing research-based interventions
- evaluating success of interventions

- **Collecting data:** One of the primary functions of public health agencies is the collection and analysis of data about health problems. When data about injuries—where, when, how and to whom they occur—are collected and analyzed, patterns of occurrence emerge. These patterns help researchers understand how a broad range of events, such as traffic collisions, choking on toys, gunshot wounds and falls, fit together.

- **Identifying risk:** Incidence recording also yields important information about the environment and behavior of people who sustain injuries. Learning about common factors that lead to injury allows the identification of risk groups for specific injuries.

- **Testing research-based interventions:** Information about risk allows public health practitioners to develop and test strategies aimed at modifying environmental and behavioral risks. Interventions can be *passive* (i.e., require little or no individual action on the part of those being protected) or *active*. Air bags are an example of a passive intervention. Standard safety belts are an active intervention, because the user must buckle them if the belts are to be effective.

  Interventions against injuries may involve a variety of strategies, including:

  - passage and enforcement of new laws or increased enforcement of existing laws (e.g., increased taxes on alcoholic beverages, smoke detector laws, safety belt laws, helmet laws)
  - education of the population at large or targeted groups (e.g., school-based programs that focus on risk assessment and decision-making)
  - efforts to alter specific injury-related behaviors (e.g., driver education programs required before obtaining a license and after violations)
  - changes in the design of products or the physical environment (e.g., shoulder straps and air bags in automobiles, child-proof safety caps on medications, automatic sprinkler systems, anticrime street lighting)

These categories are not mutually exclusive. Effectiveness is often enhanced when categories are combined. For example: Every state has passed laws requiring small children in motor vehicles to be restrained in federally approved child safety seats. The seats were developed because standard safety belts did not prevent children under age four from being thrown about or out of a car in the event of a crash. The devices were tested and proven effective when used properly. Education was an important component of getting the laws passed and encouraging parents to obtain and use the seats correctly. Education, including better label instructions, continues to be important in maintaining compliance and maximizing safety.

- **Evaluating success of intervention:** Evaluation is a complex but critical component of any public health effort. Good evaluation can determine whether and how an intervention is effective. Evaluation has two components, *process evaluation* and *outcome evaluation.*

  Process evaluation is a description of the intervention's methodology, who and how many participated, how much it cost, and which components were implemented and which were modified or eliminated. This type of evaluation is ongoing and is often referred to as program monitoring.

  Outcome evaluations measure progress toward lowering injury rates; the knowledge, attitudes, behavior or physical environment of the target population; or public policy or practice related to injury. They answer the question of whether the intervention made a difference in the health of the community.

An Interdisciplinary Approach

Injury is a public health problem because of its magnitude and because of its consequences for the health of Americans. But public health professionals are not the only participants needed in injury prevention. Success requires collaboration from diverse specialists in many fields, including:

- criminal justice
- medicine
- mental health
- social service
- education
- legislation

Public health specialists have always relied on the help of other individuals and institutions. Such help is necessary because behavior is difficult to change; only constant effort from many sources, targeted to every segment of the population, improves careless or harmful attitudes and behavior.

Smoking prevention is a good example of collaboration to meet a public health challenge. The following efforts have reduced American smoking by 30 percent.

- The U.S. Surgeon General presented evidence that smoking was harmful.
- Local, state and federal health departments funded programs to reduce cigarette use.
- The media developed and broadcast antismoking messages.
- Schools implemented health education programs to help students resist smoking.
- The American Cancer Society and American Lung Association sponsored quit-smoking days.
- Physicians recommended that their patients stop smoking.
- Businesses paid for programs to help employees stop smoking.
- Restaurants and transportation companies banned the use of cigarettes.

This type of broad-scale interdisciplinary approach is needed to help stop the loss of life and productivity due to injuries.

1-Minute Facts

- Injuries are the greatest threats to life among otherwise healthy young people.
- Injuries are the predictable result of circumstances that can be foreseen and often prevented.
- Children and youth are the victims of injury more often than any other population group.
- Public health personnel can apply the same methods used to control disease to understanding and preventing injuries.
- Success in reducing injuries requires collaboration from diverse specialists in many fields.

UNINTENTIONAL INJURY

MYTH: Bicycle helmets aren't necessary.

Fact: Bicycle riders are at high risk for head injuries that often result in severe disability or even death. Wearing helmets could reduce the incidence of head injuries to bicyclists as much as 80%.

An unintentional injury is one that is not deliberately inflicted. Unintentional injuries have traditionally been called "accidents." However, the term *accident* implies an unavoidable event, and most unintentional injuries are preventable. The science of injury prevention avoids the use of the term *accident.* National Safety Council figures for 1992 indicate that on average, 11 deaths and about 1,000 disabling injuries are caused by unintentional injury every hour.

Risk Factors

Unintentional injury types and rates vary according to age, gender, occupation, environment and other demographics. Therefore, injury prevention strategies must be tailored to individual risk groups.

- **Age:** Deaths from aspiration and choking are highest in infancy. Deaths from drowning and burns from house fires peak around age three. Preschoolers are at high risk for falls, poisonings and being run over by cars, usually in a driveway. Pedestrian deaths from traffic increase to about age six, when they are replaced by bicycle injuries to age fourteen.

  Fatalities from the unintentional discharge of firearms rise steadily between the ages of five and nineteen. Dramatic increases in drownings, poisonings and motor vehicle occupant deaths begin at age fifteen.

- **Drug use:** Alcohol and other drug use, especially cocaine, amphetamines and PCP, increase risk-taking behavior and impair physical and mental abilities. Drug use contributes significantly to all categories of injury.

- **Gender:** Males consistently have higher injury rates than females. Experts hypothesize that boys engage in more risk-taking behaviors and, therefore, expose themselves to greater opportunity for injury. According to the U.S. Department of Health and Human Services, males are two and a half times more likely to die from injury.

- **Socioeconomic status:** People who have little money or social status have a higher incidence of injury as well as higher injury mortality rates. Families in lower-income areas may be less likely to have safety devices such as smoke detectors, fire extinguishers or child safety seats.

- **Location:** People who live in rural areas are unintentionally injured more often and have higher death rates from injuries than those living in urban or suburban areas. This higher risk is probably due to greater exposure to hazards (e.g., farm equipment that is exempt from many safety regulations), higher road speeds and delays in obtaining medical treatment.

  Fire-related deaths are more common in areas with poor housing standards and crowding. Poisoning generally is a problem in urban areas, although many pesticide poisonings among agricultural workers probably go undetected. Drownings occur in all climates but are especially common in homes with backyard pools.

- **Ethnicity:** Higher death rates from unintentional injury are found among African Americans across all age groups. African-American males die most often. Statistics compiled by the Indian Health Service indicate Native Americans and Native Alaskans have disproportionately higher death rates from motor vehicle crashes, home fires and drownings, especially on reservations.

Traffic Injuries

Traffic injuries include injuries to occupants of motor vehicles, to pedestrians, and to motorcyclists and bicyclists. Since the first American traffic fatality occurred on 13 September 1899, nearly 2.8 million persons in the United States have died of injuries received in traffic.

Traffic fatalities have been decreasing at a rate of approximately 3.5% per year. Between 1990 and 1991, deaths dropped almost 8%. However, traffic injuries are still responsible for more than 41,000 deaths a year. Traffic injuries remain the leading cause of death among persons 1 to 34 years of age.

Nonfatal injuries may outnumber deaths by as much as ninety to one. Statistics for 1990 indicate almost 6.5 million vehicle crashes—one every five seconds—were reported, with nearly 2 million nonfatal injuries.

Motor vehicle injuries cause most cases of *paraplegia* (paralysis of the lower half of the body) and *quadriplegia* (paralysis from the neck down) and are the single leading cause of brain injury. Many of these injuries involve motorcycles, motor scooters or mopeds, or all-terrain vehicles. The rates of nonfatal injuries are greatest for males ages 15 to 24. One in 21 young men in this age group will be involved in a serious crash.

The Urban Institute puts the cost of highway crashes at more than $334 billion annually. The estimated 360,000 people who are seriously injured in these crashes spend an average of seven days in the hospital. Direct medical charges for inpatient care in 1990 totaled nearly $6.5 billion, of which $1.2 billion was paid by the federal government.

Pedestrians

Traffic injuries are commonly thought of as resulting from the collision of two cars. However, many injuries are caused by cars crashing into people on foot. In 1992, more than 5,500 pedestrians were killed by cars, about 14% of all vehicle-related fatalities. An additional 96,000 pedestrians were injured.

People should always look both ways before crossing the street and, if possible, use a crosswalk. Walking on the sidewalk is safest; if there is no sidewalk, pedestrians should walk on the left side of the road facing oncoming traffic. At night, walkers should wear light, reflective clothing and carry a flashlight. Reflective strips that attach to clothing can be purchased at outdoor supply stores or bike shops.

Children are particularly vulnerable pedestrians. Injury usually occurs when children dart out into traffic when playing or because they are not able to adequately judge the speed and distance of oncoming vehicles.

Children can be taught pedestrian safety. Very young children can learn not to cross the street without supervision. Older children can learn to "stop, look and listen" before going into a street. Other possible ways to reduce pedestrian injuries include:

- one-way streets
- pedestrian lights
- "talking" signals at intersections
- changing bus stop locations
- use of sidewalks and roadway barriers
- use of crossing guards and escorts for young children

Drinking and Walking Is Dangerous, Too

A recently released study by federal health officials shows a substantial number of vehicle-pedestrian injuries are caused by intoxicated walkers.

Studies done by the National Highway Traffic Safety Administration indicate 36% of pedestrians over age 14 who were killed had blood-alcohol levels of 0.10%, high enough to be cited for drunk driving had they been behind the wheel of a car. About half of those killed had blood-alcohol levels higher than 0.20%.

The National Highway Traffic Safety Administration is currently looking for a way to identify those who are most at risk of walking drunk into traffic. The agency will use this information in training programs for waiters and bartenders.

Computer software will soon be available to cities to help determine where pedestrian/car crashes occur and make those areas safer. Strategies might include fencing problem sidewalks, lowering speed limits near bars, or increasing public transportation.

Motorcycles

Two-wheeled vehicles are less stable than those with more wheels, so the risk of injury on a motorcycle is inherently greater than that of driving or riding in a car. As a group, motorcycle fatality rates are 19 times that of car drivers.

Among 15 to 34 year olds, about 10% of traffic fatalities involve a motorcycle driver or passenger. For each of the approximately 4,500 deaths, there are about 37 injuries. Injury rates overall are ten times higher for males than females. Males are more likely to be driving; female victims are usually passengers.

Scientific studies indicate that the factors which most affect death rates are the amount of travel and the use of a protective helmet. Helmet use, however, has been controversial.

Only a few states began the 1990s with mandatory helmet laws. The 1991 federal highway bill required sweeping changes. By 30 September 1993, states without mandatory helmet laws would lose 1.5% of their federal highway construction funds. The money would be reallocated to safety programs. The safety allotment would rise to 3% for any state that failed to comply after 30 September 1994.

The federal law was based on studies published by the Centers for Disease Control and Prevention (CDC). These studies concluded that helmetless riders pose undue financial burdens on society (60% of the average $25,000 bill is paid by public funds) and that helmets would reduce the rate of head injuries. Two states that had weakened their helmet laws experienced increases of 184% and 73% in head-injury-related motorcycle deaths, while one state that strengthened its law had a decline of 44%.

In response to criticism, the CDC re-examined the data. Again it concluded that helmets prevented head injury deaths and significantly reduced permanent head injury disability in nonfatal crashes.

Bicycles

Bicycles are dangerous for the same reasons as motorcycles, but injuries tend to affect younger riders. The U.S. Consumer Product Safety Commission estimates that in 1985 there were 574,000 emergency room visits due to bicycle-related injuries. In 1991, 196,000 head injuries sustained by bicycle riders were reported; about 23% were serious enough to require hospitalization. About 90% of the approximately 1,000 cyclist fatalities (half of whom are children) each year result from collisions with cars. Nonfatal injuries are usually caused by falls.

Cyclists need to know how to operate their vehicles and keep them in good working order. Nearly 20% of bike injuries are caused by mechanical problems such as brake failure or riding a bike that is too large for the rider.

Bicycle helmets could reduce the incidence of head injuries to bicyclists as much as 80%. According to the CDC, helmet use between 1984 and 1988 could have prevented as many as 2,500 deaths and more than 757,000 head injuries. Unfortunately, studies show that fewer than 10% of bike riders—and fewer than 2% of children on bikes—wear helmets.

According to Bill King, a trauma epidemiologist at the University of Alabama, Birmingham, School of Medicine, the main barriers to children's helmet use are parents' lack of awareness of the need, the cost of helmets, and peer pressure. Physicians and public health advocates are spearheading a national effort to break down these barriers and increase helmet use.

- **Awareness:** In 1988, the National Safe Kids Campaign began in Washington, D.C. Today, there are 130 branches around the country, many run in affiliation with hospitals, health departments, emergency medical services and community groups. Although the groups promote child safety in many areas, bikes are a primary focus. The Safe Kids coalitions hold safety fairs and "bike rodeos," which teach children and their parents to appreciate that bicycles are vehicles, not toys, and how to ride safely, including wearing helmets.

- **Cost:** Groups around the country are working with helmet manufacturers to offer headgear at a discount. The Seattle Bike Supply in Kent, Washington, works with programs in half a dozen states and welcomes new participants.

  Pediatricians in Birmingham, Alabama, offer parents coupons worth $15 off on a $40 helmet. Sales went from zero to 3,000 in the first year of the program.

- **Peer pressure:** Teenagers especially are likely to resist wearing helmets. Seattle physician Frederick Rivara, director of the Harborview Injury Prevention and Research Center, persuaded helmet manufacturers to make products in bright colors. He followed up with an award-winning TV public service advertisement, and the percentage of adults and children wearing safety helmets increased.

SAFER RIDING

Bicycle paths and lanes are an effective way to separate bikes and cars. They also provide a surface free from common hazards such as potholes.

Motor Vehicle Occupants

People ages 1 to 34 are more likely to be killed in cars than by any disease. Motor vehicle occupant deaths totaled more than 38,000 in 1986. Rates peak at ages 16 to 19, with males at greatest risk. One in 21 American males ages 15 to 24 will be injured in a crash severe enough that the vehicle must be towed away. Clearly, this group of drivers constitutes a special category for traffic injury prevention efforts.

Although alcohol use by drivers has been decreasing slightly, it is still a leading factor in traffic crashes that result in serious injuries or death. According to the National Highway Safety Administration, nearly 40% of all fatally injured drivers have sufficient alcohol in their systems to be legally intoxicated.

A variety of efforts have been undertaken to reduce the risk of motor vehicle injuries. They include:

- auto safety features
- road design
- speed limits
- blood alcohol concentration (BAC) laws

■ **Auto safety features:** The 1966 National Traffic and Motor Vehicle Safety Act established the National Highway Safety Administration and empowered it to set standards for new cars beginning in 1968. Since that time, numerous safety items have been added to automobiles, including collapsible steering wheels, dashboard padding, antilock brakes, highback seats, child restraints and, of course, safety belts. Air bags, which increase safety when used in conjunction with safety belts, are now available on many models.

■ **Road design:** The rate of deaths on interstate highways is less than half the rate on other roads. Much of the difference is directly due to careful highway planning, including wide median strips between lanes going in opposite directions, wider shoulders and breakaway obstructions (signs, lights, etc.) along the roadside. Many of these safety features could be extended to other roads, greatly reducing injuries.

Safety Belts Really Do Work

All motor vehicle occupants should wear safety belts for every trip, no matter how short.

- Three out of four auto crashes happen within 25 miles of home.
- Nearly eight out of ten crashes occur at speeds of less than 40 mph.
- Crashes at speeds of as low as 12 miles per hour (the average parking lot speed) have resulted in death to car occupants without safety belts.
- Most auto injuries happen in cities, not on the open road.

Safety belts, lap and shoulder, save lives by keeping people unhurt, alert and able to escape quickly. Even in a minor crash, drivers and passengers without safety belts can easily be stunned or knocked unconscious.

The force of a crash is much greater than people imagine, roughly equal to the individual's weight times the car's speed. For example, a 150-pound individual in a 30-mph crash would hit the window or dash with 4,500 pounds of force. There's no way human arms and legs can resist this force.

Victims who are thrown out of the car in a crash face the greatest risk of injury, including a 25 times greater chance of being killed. A person wearing a safety belt stays safely in the vehicle and usually sustains less serious injuries.

Safety belts prevent:

- going through the windshield
- being thrown into trees, rocks or other cars
- being dragged along the pavement
- getting run over by a car

Decades of studies have shown that wearing safety belts increases safety. Unfortunately, fewer than 15% of drivers and 8% of child passengers wear them all the time. Use rates are considerably higher in states that have and enforce mandatory restraint laws.

- **Speed limits:** Higher speeds increase the likelihood of crashes, because drivers have less time to react to emergencies. The types and severity of injuries increase as well, because the force of impact rises exponentially with velocity. For example, hitting a stationary object at 70 mph has almost twice the impact force of a 50 mph crash.

  In 1974, Congress enacted the 55 mph speed limit as a fuel conservation measure. In addition to saving about $2 billion in fuel costs per year, studies show that this limit saved 2,000 to 4,000 lives and 2,500 to 4,500 serious injuries.

  Enforcing posted speed limits also reduces injury. Drivers are less likely to speed when they know they are likely to be ticketed.

- **Blood alcohol concentration (BAC) laws:** Drinking alcohol and driving is dangerous. In addition to education, enforcement of blood alcohol concentration (BAC) laws has markedly decreased alcohol-related motor vehicle crashes. State BAC limits, however, vary.

  The American Medical Association and a host of other experts are calling for a national BAC law of 0.05%, the level at which driving skills are proven to deteriorate. Some also advocate a 0.02% limit for teenage drivers, mandatory BAC testing in all cases of traffic injury, and immediate surrender of driver's license for failure or noncompliance.

  Sobriety checkpoints are seen as another way to increase awareness of enforcement efforts and increase the perception that impaired driving will be detected and punished.

  Other suggestions for reducing impaired driving include:
  - rigorous enforcement of minimum drinking age laws
  - dram shop laws, which make those who serve alcohol to intoxicated persons or minors liable for alcohol-related problems
  - designated driver and safe-ride programs
  - ignition interlock devices that prevent drivers from starting a vehicle unless they pass a BAC breath test
  - improved roadway countermeasures such as edge lines, raised lane markers and road signs

Recreation Injuries

Recreation and leisure-time activities are important for good physical and mental health. Children and adults need to play. Play helps develop coordination and perceptual skills. Recreational activities help relieve stress and maintain fitness. There is enormous variety in the types of activities people enjoy, but they all have two things in common: they are fun and they can be dangerous.

Some activities—for example, skydiving and rock climbing—are inherently more risky, but relatively few people participate in them and reports of injury are rare. Others, such as skateboarding and inline skating, are passions of youth, and there has been no systematic study to present an accurate estimate of risk. Millions participate in informal sports programs, from bowling to neighborhood basketball games to ice skating on the local frozen pond.

Because of the huge diversity of recreational activities and the variety among those who participate, it is very difficult to obtain good data regarding injury. National safety groups estimate that fewer than half of all recreational injuries are even identified as such.

People who engage in rigorous and/or hazardous recreational activities need to take the appropriate safety precautions to protect themselves and others from injury. Such steps can improve safety and reduce injury in many popular recreational activities, including water sports, winter activities and the use of all-terrain vehicles.

Water Safety

The obvious danger of being in the water is drowning. The United States averages more than 6,500 drowning deaths each year. Many more individuals suffer brain damage when they are deprived of oxygen under water. The consequences of these "near drownings" are often devastating. No one knows the number of potential drowning victims who are rescued before they experience serious injury.

As with other types of injuries, males drown more often, with a rate four times that of females. Drowning is the third leading cause of unintentional death among children under age 15, and the second leading cause of death for children under age 5. Young adults between ages 15 and 24 also have high rates of water deaths, many related to alcohol use.

Approximately one-half to three-quarters of drownings occur in natural bodies of water; most others occur in swimming pools and a few in bathtubs. A very high percentage of young children who drown do so in residential swimming pools or hot tubs. Studies show that three-quarters of the home pools or spas in which children died did not have barriers around them.

- **Swimming safety:** Swimming is an important life skill everyone should learn. Swimming lessons are often available through the Red Cross, YMCA and other organizations.

  No one, of any age, should swim alone. Swimmers should swim with buddies or use pools and beaches with lifeguards. People should never drink alcohol before going in the water.

Hot Tub Safety

Home hot tubs, spas and Jacuzzis can be dangerous. The U.S. Consumer Product Safety Commission reports nearly 2,000 injuries related to these devices each year.

The greatest danger is to young children, but youth and adults are at risk, too. Because hot water promotes sleepiness, prolonged use or use in combination with alcohol or other drugs can lead to hyperthermia-induced stupor and drowning.

- **Pool safety:** All swimming pools should have multiple barriers—fences, self-closing and self-locking gates, pool alarms, and automatic safety covers. Effective barriers should supplement, not replace, adult supervision. Parents and other caregivers should know basic rescue techniques and cardiopulmonary resuscitation (CPR).

  All pools should have life preservers in good condition within easy reach. Research shows the risk of drowning increases with the distance of the telephone from the pool. Telephones should be in the immediate pool area.

- **Diving safety:** The most common serious diving injury is spinal cord injury. About 1,000 of these injuries, mostly among adolescent and young adult males, occur each year. Most result in permanent paralysis.

  The typical aquatic spinal cord injury occurs when a diver's head hits the bottom or side of a shallow body of water such as a swimming pool or murky lake, pond or river. Alcohol plays a role in at least one-half of all diving injuries.

  The best prevention is checking the depth and bottom conditions of the water before diving and avoiding the use of alcohol when around the water.

- **Boating:** Boating is one of the fastest growing recreational activities in the United States. Operating a boat of any kind is as serious and carries the same responsibilities as operating an automobile.

  A reportable boating incident is one in which there is a loss of life, personal injury requiring medical attention beyond first aid, property damage exceeding $200, or the complete loss of a vessel. According to Coast Guard figures for 1987, 1,036 people died in boating incidents, and 3,501 injuries were reported. The Coast Guard estimates that only 10% of nonfatal injuries are reported.

Most injuries occur during collisions, but most deaths are the result of falling overboard and drowning. Somewhere between one-third and two-thirds of all incidents resulting in death involve alcohol.

All people in boats, whether they can swim or not, should wear life vests, technically called *personal flotation devices*. Few states at present require operating licenses or education courses for recreational boaters. Experts believe both should be required.

There is no specific blood alcohol concentration (BAC) limit for drunk boaters. Since alcohol is involved in so many serious boating injuries and deaths, a designated BAC and strict law enforcement would substantially reduce safety risks.

Winter Sports

A variety of injuries can occur during winter sports. People participating in winter sports should be aware of the weather forecast and dress appropriately. They also need to know the terrain. Some popular winter sports include:

- skiing
- sledding
- snowmobiling

■ **Skiing:** About 10 million people ski recreationally in the United States. Every year, more than 500,000 skiing injuries are reported, almost half of them involving children. Most injuries are caused by falls; 15% are due to collisions.

Downhill skiing is an extremely hazardous sport for three reasons: speed, weather and terrain. The following general guidelines can reduce the risk of injury while skiing:

- Skiers should be in good physical condition before going skiing and should warm up before the first run.
- Beginning skiers should take lessons from an expert. They need to know how to stop and turn well before attempting anything more than a novice slope. No one should try to ski down a slope that is beyond her or his ability.

- Skiers need to dress for protection against the wind and cold. They should wear parkas, flexible pants, socks, gloves, and hats that cover the ears. In very windy and frigid weather, a face mask and goggles add extra protection.
- Skiers need to use equipment that fits and is well-maintained. About 40% of all ski injuries are caused by faulty bindings. Bindings should be secure enough to hold a skier's foot to the ski but at the right pressure to release in the event of a fall.

■ **Sledding:** Sledding and tobogganing are favorite winter sports for children, but they can be dangerous. They cause a high incidence of injuries, particularly among five to nine year olds.

An estimated 33,000 sledding-related injuries occur each year. About 90% are traumatic enough to be treated in emergency rooms, and roughly one in ten children requires hospitalization. Common serious injuries include concussions, fractures and damage to internal organs, usually caused by collisions with fixed objects such as trees and fences. Other injuries result from faulty equipment, poor conditions and crashes with cars.

Coasting areas should be checked to be sure they aren't too steep or icy and are clear of traffic and obstacles. It is best to slide on designated slopes in parks or winter recreation ares. Experts also suggest children wear helmets and protective clothing and ride with their heads toward the back of the sled or toboggan.

■ **Snowmobiling:** Snowmobiling is a relatively new sport that is also dangerous. Each winter, thousands of collisions (mainly with cars) are reported. These collisions result from driving too fast, riding on unfamiliar terrain, operating the vehicle on public roads, driving without proper instruction, and use by intoxicated drivers.

Snowmobiles are not toys. They are motor vehicles with the same safety considerations as cars or motorcycles. All operators should take the following precautions:

- Be very familiar with the vehicle's parts and operation.
- Wear goggles, a helmet and warm, close-fitting protective clothing.
- Know the traffic laws. (Many states prohibit the use of snowmobiles on public roads and have minimum age requirements for drivers.)
- Plan a route in advance.
- Never drive on ice-covered ponds or lakes.
- Avoid driving in bad weather.
- Stop before crossing a road or railroad tracks.
- Stay alert at all times.

All-Terrain Vehicles

Although all-terrain vehicles (ATVs) represent a relatively new category of recreation, studies show this activity has a very high rate of injury. In 1982, there were approximately 8,000 ATV-related injuries. By 1984, there were 60,000, and in 1985, that figure had climbed to almost 86,000 and 238 deaths. Head injuries and subsequent brain damage were the most common types of problems treated.

The following characteristics are typical of the people most often injured in these vehicles:

- male (72%)
- under age 16 (50%)
- driving or riding in three-wheeled ATVs (87%)
- hurt in roll-overs (68%)
- not wearing helmets or other protective clothing (80%)
- drunk (30%)

The U.S. Consumer Product Safety Commission and the U.S. Department of Justice reached a settlement in a lawsuit against ATV manufacturers in 1988, which required manufacturers to take the following actions:

- Stop selling three-wheeled ATVs.
- Offer safety courses to all purchasers.
- Place warning labels about risk on all vehicles and owners' manuals and in dealerships.
- Participate in an advertising campaign demonstrating the dangers of ATV use.
- Cancel advertising that shows ATVs being used in dangerous ways.
- Recommend appropriate age limits for each model.
- Not oppose state initiatives for licensing and certification of ATV operators.

Many health officials believe these restrictions were not enough. They support a complete ban on the manufacture, import and sale of ATVs, because their use imposes an unreasonable injury risk.

Amateur Competitive Sports

Competitive sports, particularly youth sports, are very popular in the United States. Almost every town has organized sports programs for young people. The average high school athletic program now offers 26 different sports for boys and girls. In 1991, more than 20 million American children and youth participated in competitive sports.

According to the U.S. Consumer Product Safety Commission, 4 million children seek emergency room treatment for sports injuries every year, and estimates are that another 8 million are treated by their family doctors. The National Athletic Trainers Association estimated in 1990 that at least 1 million high school athletes suffered at least one sports injury; more than 20,000 required surgery.

Sports Classifications

The following list was developed by the American Academy of Pediatrics.

Contact/Collision Sports

- boxing
- boys' lacrosse
- field hockey
- football
- ice hockey
- martial arts
- rodeo
- rugby
- soccer
- wrestling

Limited Contact/Impact Sports

- baseball
- basketball
- bicycling
- cheerleading
- cross-country skiing
- diving
- downhill skiing
- equestrian sports
- field events
- figure skating
- girls' lacrosse
- gymnastics
- racquetball
- roller-skating
- softball
- squash
- volleyball
- water skiing

Noncontact Sports

Strenuous

- dancing
- discus
- javelin
- rowing
- running
- shotput
- swimming
- tennis
- weight lifting

Moderately strenuous

- badminton
- curling
- hiking
- table tennis

Nonstrenuous

- archery
- golf
- riflery

There are two major types of sports injuries, *acute* and *overuse*. An acute injury is usually caused by abrupt force—for example, a collision, getting hit with a ball, or a sudden turn or twist. Many acute injuries don't require extensive treatment and will heal in time. Knee, ankle and shoulder injuries are the most serious, with knees causing the most long-term problems.

Overuse injuries are progressive conditions caused by repetitive stress on one part of the body, such as tennis elbow. These injuries often take months to heal.

Generally, the seriousness of injury is related to the amount of force involved in a sport. High-impact sports such as football, wrestling and ice hockey have high rates of injury. However, limited-impact sports such as gymnastics also have high injury rates. Even noncontact sports such as track and field or swimming often involve overuse injuries. The fact is, all sports are potentially dangerous.

Age is another factor in sports-related injuries. Children under age 13 seldom sustain severe injuries. High school and college athletes, on the other hand, are at much higher risk.

Each sport has its own level of injury risk, and participants are susceptible to different kinds of injuries. Some common sports in which young people may be injured include:

- football
- basketball
- baseball
- wrestling

■ **Football:** Players under age 14 are usually as safe playing football as other sports. These youngsters' bodies are very flexible, so muscles tend to stretch rather than tear. A player this young usually isn't heavy enough or powerful enough to injure another player. However, injuries can occur if some players are very mature while others are small. Teams should be balanced by size and physical ability, not chronological age.

Serious football injuries begin in high school. At this level, football has the highest injury rate of all sports. Half of the estimated 1.3 million high school players are likely to be injured during the year. One-third of these injuries will sideline the players for three weeks or more. Football averages ten deaths per year.

Preventing Athletic Injuries

- **Stay in shape.** People who are out of shape are more easily injured than those who are fit.
- **Warm up before exercise.** Warm muscles are less prone to injury.
- **Keep muscles warm.** Chilled muscles are subject to spasms and injury.
- **Use the proper equipment.** Wear clothes that fit and are appropriate to the sport. Don't omit protective devices such as pads, mouth guards or goggles.
- **Soft-tissue injuries need ice, compression and elevation (ICE).** Injuries to muscles and joints can be painful and cause swelling. The key to swift recovery is keeping the swelling down.
- **Don't come back too soon.** Injuries need time to heal. The secret to overcoming an injury is to increase the strength and flexibility of an injured part slowly and steadily.

The six most common football injuries likely to have permanent effects are

- **Head injuries:** mild to severe concussions; only boxers have more head injuries.
- **Neck injuries:** stretch problems fairly common; an average of ten quadriplegic cases due to broken necks per year.
- **Shoulder injuries:** second most common problem.
- **Abdominal injuries:** ruptured spleen infrequent.
- **Knee injuries:** most prevalent and disabling extremity injuries in football. One in four high school players will have some type of knee injury; about 15,000 players require surgery each year.
- **Ankle injuries:** common cause of lost playing time. Only a small percentage cause trouble in later life.

Conditioning, including strength training, is the best way to prevent football injuries. Good technique, equipment and playing conditions are essential. Rule changes that prevent "head butting" or "spearing" have significantly reduced head and neck injuries.

- **Basketball:** Basketball is one of the most popular team sports in the world. More than 22 million Americans play. Reports indicate that up to two-thirds of players will sustain at least one injury, but 90% are minor and few result from contact with another player. Ankle and foot injuries are most common, followed by knee problems and eye injuries.

  Basketball injuries are difficult to prevent, but endurance training, adequate warm-ups and stretching help. Good officiating can keep contact to a minimum. Players can wear knee and elbow pads for protection and shatter-proof sport glasses to protect eyes.

- **Baseball:** Baseball is a relatively safe sport. Four and a half million Americans play amateur ball, half of them under age 13. The most common injury risk is to the pitcher, who often develops tendinitis in the throwing arm or shoulder. The most serious injuries are caused by being hit in the head or chest by a pitched or batted ball. These injuries can be fatal.

  The protective helmet worn by batters helps to prevent the most serious head injuries, especially in younger players. Face masks that attach to the helmet and use of a softer regulation ball provide further protection. Breakaway bases prevent sliding injuries. Coaches should restrict how many pitches a player is allowed to throw.

- **Wrestling:** An estimated 250,000 high school boys participate in this sport, which by its very nature invites injuries. One high school study showed an injury rate of 23%, but only 6.3% were considered major. Knee and shoulder injuries were reported most often. However, the biggest health problem related to wrestling is not injury but excessive water loss, which temporarily reduces weight and allows wrestlers to qualify for lower weight classes.

  Because wrestling places power, force and torque on the body, injury in the sport cannot be eliminated. Wrestlers can reduce their risk, however, by strength training and by wearing protective helmets. Coaches never should encourage athletes to reduce body weight by increasing water loss through sweating and fasting without fluid replacement.

What Makes a Good Coach?

Coaches play a key role in preventing injuries to young people. The best coaches have the following qualities.

- **Provides a good role model:** Coaches should be good role models who project healthy sports values. Good coaches encourage each player and instill discipline, self-reliance and confidence. They are not abusive and don't use threats. They also avoid the use of tobacco, alcohol and other drugs. They use exercise and good nutrition to maintain their own good health.

- **Makes injury prevention a priority:** The win-at-all-costs attitude hurts players. Good coaches don't risk injury to their players even in a crucial game. No win is worth the risk.

- **Goes by the rules:** Although officials enforce the rules during a game, coaches teach them. It's the coach's job to insist that rules are followed and to discipline players who forget.

- **Teaches skills:** Knowing how to play the game and use the equipment properly is crucial to injury prevention. Good coaches are good teachers, and they don't let players play until they've mastered the game's basic skills.

- **Can give first aid in an emergency:** Good coaches have completed courses in first aid and CPR and have an organized plan for dealing with emergencies.

- **Meets professional standards:** Good coaches take pride in their jobs and work to stay abreast of the latest information on their sport. Some states require certification.

Improving Sports Safety

The National Committee for Injury Prevention and Control suggests the following guidelines for the development of any sports injury prevention program:

- Rules must be strictly enforced by officials.
- Dangerous and illegal techniques must be prohibited.
- The use of alcohol, tobacco and other drugs by players must be prohibited.
- Head coaches and staff should be versed in first aid and prevention of injuries and illnesses.
- Personnel specifically trained in prevention and care of injuries and illnesses and in CPR should be available at all games and practice sessions. Protocols for the care of injured or ill persons should be developed.
- Appropriate criteria for conditioning programs should be established. Practice sessions and conditioning programs should be supervised by qualified personnel. The length of the practice sessions should be limited. The number of double practice sessions each season should be limited to no more than ten.
- Games and practice sessions should be postponed or canceled during extreme weather conditions, including excessive heat or cold.
- Equipment and fields should be inspected and maintained. The condition of field surfaces should be inspected regularly. Adequate distance between activity areas and hazards such as walls, fences and benches should be provided. Barriers that cannot be removed should be padded with materials adequate to prevent injury in the event of a collision.
- Players should be outfitted with properly fitting equipment. Activity without the full complement of required equipment should be prohibited.
- Following an injury, players should not return to play without a physician's permission.

- Players must not return to play after experiencing loss of consciousness and/or spinal trauma symptoms. Only well-trained, qualified personnel should be allowed to move such persons. Injured players should be referred for medical assessment. Concussion symptoms, including loss of consciousness and/or awareness, should be assessed by qualified personnel. Frequent communication among team members should be maintained to detect subtle symptoms associated with concussion.
- The use of substances to reduce pain and swelling so players may be returned to activity should be avoided.
- Salt tablets and other medications should be provided only on medical order.
- Education programs in prevention should be developed. Players and parents should be included in the programs, and players' learning should be evaluated regularly. Information should include:
  - — risks associated with athletic activity
  - — the necessity for conditioning programs
  - — general prevention of injuries and illnesses
  - — rules
  - — nutrition
  - — drug use
  - — proper fitting and wearing of equipment
  - — illegal and dangerous techniques
  - — psychological and motivational factors

- Administrators should participate in efforts to obtain qualified personnel and a budget adequate to furnish protective equipment and essential supplies.
- Criteria for physical exams, including screening for evidence of neurological and cardiovascular pathology, should be developed.
- Health history cards should be maintained for all players. Cards should include a record of past injuries and illnesses, neurological and/or cardiovascular symptoms, hospitalizations, surgery, medications, allergies, and a

consent for treatment form signed by parents or guardians, including the names of the players' physicians and health insurance companies. These cards should be kept available for use at all times to prevent treatment delays, maintain a current health record, and identify potential risks.

- An emergency plan incorporating ambulance service staffed by certified personnel and emergency hospitalization should be developed. All staff members should be aware of the plan.
- A comprehensive system for reporting and recording information on all athletes should be developed to identify the magnitude of the injury problem and to help identify and evaluate injury patterns and potential intervention efforts. Definitions of injury and illness that facilitate the detection of injuries and illnesses, incorporate the definitions of symptoms, and incorporate criteria on duration of symptoms, level of discomfort, and possible activity limitation(s) should be developed or adapted.

(Adapted from The National Committee for Injury Prevention and Control. 1989. *Injury Prevention: Meeting the Challenge*. New York: Oxford University Press.)

The Role of Schools

For children ages five through nine, the risk of dying from injuries during the next 15 years is 2.6 times greater than the risk of dying from all other causes combined. About 75% of children's injury mortality is caused by unintentional injury, the greatest proportion from motor vehicles. For example, in the years from 1980 to 1985, approximately 44,800 children from birth to age 14 died from "accidental" injuries. Nonfatal injuries incapacitate and disable millions of children and youth each year.

Because children and youth spend a great deal of their time at school, this setting offers an important opportunity to identify at-risk children and intervene to prevent injury. The following aspects of the school setting should be considered:

- facilities and environment
- policies and procedures
- staff training
- injury prevention curricula
- health services

- **Facilities and environment:** The first step is to make schools safe. This includes changes in the environment, e.g., playing fields and instructional areas, including labs, shop classes and gyms. Risk reduction may require design changes or physical hazard removal.

- **Policies and procedures:** Administrative rules and regulations help maintain school safety. Written policies should cover first aid and emergency care, record keeping, disaster preparedness, traffic control, and procedures for sports and recreational programs.

- **Staff training:** Educators are in a unique position to identify injury problems and potential solutions, but few have had formal training to do so. Teachers, administrators, coaches and other staff must be oriented to school safety policies and procedures, as well as given opportunities to develop their personal knowledge of and competence in injury prevention strategies.

- **Injury prevention curricula:** Children and youth can learn important injury prevention skills in school. Curricula should be designed to reduce the frequency and severity of injury—in school, at home, on the road and in the community. Instruction should increase knowledge of injury risks and improve attitudes, while encouraging behaviors that promote safety.

- **Health services:** School-based health service providers can observe and record injuries and intervene to prevent them. They can also provide on-site treatment and follow-up. If children and youth are to reap the potential and necessary health service benefits, school systems will have to re-examine current policies and resource allocations for school nurses, physicians and dentists.

1-Minute Facts

- Injury prevention strategies must be tailored to individual risk groups.
- Traffic injuries are the leading cause of death for persons 1 to 34 years old.
- A variety of efforts have been undertaken to reduce the risk of motor vehicle injuries, including auto safety features, safer road design, speed limits and laws that regulate blood alcohol concentration.
- Steps can be taken to improve safety and reduce injury in recreational activities.
- Four million children are treated in emergency rooms for sports injuries every year.
- Schools offer an important setting to teach injury prevention.

VIOLENCE

MYTH: Youth gangs are a problem only in large urban areas.

Fact: Youth gangs exist in nearly every state and in small towns as well as large urban centers.

Violence is the threat or use of force that injures or intimidates a person or damages property. There are six types of major violent crimes against people:

- **assault**—attempt to inflict or infliction of injury on another person
- **battery**—any act of physical force against another person
- **aggravated assault**—attacking or attempting to attack someone with a deadly or dangerous weapon with the intent of causing serious injury or death
- **rape**—trying to have or having sex with a person without her or his consent by using force or threatening to use force

- **robbery**—stealing directly from a person by force or by threatening to use force, with or without a weapon
- **homicide**—killing another person without legal justification

The Scope of the Problem

More than two million Americans are victims of violent injury each year, and statistics indicate that violence is increasing. The U.S. Department of Justice reports that between 1985 and 1989 the following violent crimes increased:

- murder—13%, to approximately 23,000 per year
- aggravated assault—32%, to approximately 955,640 per year
- rape—7%, to approximately 87,600 per year
- robbery—16%, to approximately 573,380 per year

Not only has the rate of violence gone up, but the level of viciousness has increased as well. A few years ago, two people in an argument might have fought it out with fists; today, one is likely to pull a gun and kill the other. Every day, journalists report typical examples of shocking crimes: torture, immolation, decapitation, mass murders. Americans have come to accept this violence as routine.

The United States ranks first among industrialized nations in violent death rates. Experts estimate that one in 300 Americans is violent, whereas only one in 30,000 people is violent in Japan and Europe. The total number of deaths in the United States caused by violent and unintentional misuse of firearms is greater, at approximately 8,000, than the total of the next 17 nations combined.

Except for homicide statistics, which are compiled by the relatively simple task of counting bodies, the true amount of violence can only be estimated. Abuse in homes seems to be widespread but goes on invisibly. There are no routinely collected national statistics for assaults that result in injuries, even those that require emergency room treatment or hospital stays.

The bulk of violent crimes pass unnoticed beyond the victims and their families. Of every 100 very violent acts committed, only about 47 are even reported to the police, who eventually arrest about 22 suspects. Half of these suspects will be convicted, but only two will spend time in prison.

This violent injury and death is very expensive. The toll in grief and lost potential is incalculable. The lives of those who encounter violence are shattered. If they survive, they carry fear, anger, shame and vulnerability into every human encounter. Close friends and family members are similarly affected. The community must recover from the vast loss of productivity, and support the needs of victims who are maimed and disabled.

Financial costs are staggering. The *Journal of the American Medical Association* estimated the charges for treating only gunshot wounds at more than a billion dollars a year, 85% of which is paid by taxpayers. The director of the Centers for Disease Control and Prevention (CDC) Injury Division, Dr. Mark Rosenberg, puts the total violence price tag at $60 billion a year.

Aggressors and Victims

In every country, among all cultures, men are more violent than women. Males commit 82% of all homicides. Although women have committed brutal and sadistic murders, almost all serial murderers are men. Domestic physical and sexual abuse is usually a husband battering his wife or children.

The rate of violence among females, however, is increasing. Young girls involved in gangs or using drugs are engaging more often in violent attacks. And some crime experts believe many more females than males escape detection for their crimes.

Roughly 95% of those arrested for violent crime are either unemployed or underemployed and living below the poverty line. A high proportion of these people are minorities living in urban centers. In fact, most violent crimes are committed by and against poor people of color.

Economics, not ethnicity, is the biggest risk factor for crime. When studies of homicide control for poverty, there is no racial difference in the rates of violent crime. Poor people commit and are victims of violence at rates well above their more affluent counterparts, regardless of their ethnicity.

National Crime Surveys based on victim interviews suggest that Whites attack proportionately just as often as people from other ethnic groups but are arrested less frequently. Police may tend to patrol minority neighborhoods more rigorously. Elements of the criminal justice system may also discriminate against minority group members.

Currently, there are more than twice as many African-American teens as White teens in jail. More college-age African-American men are now in jail or on probation than are in college. Unfortunately, jail does not offer many opportunities for career planning or personal development.

Relationships

Most violent acts do not occur between strangers. Rapes, shootings, stabbings and fights happen between people who know each other. Murder is associated with the commission of another crime less than 16% of the time. Usually two people, at least one of whom is armed, just get into an argument. One dies. Half of all homicides involve family members or friends. Victim and assailant are of the same race 90% of the time.

Shared Traits

Research on homicide and violence shows that aggressors and victims are likely to share many traits:

- young
- male
- poor
- previously exposed to violence, either as witnesses or victims
- depressed
- users of alcohol and/or other drugs

Both aggressors and victims are likely to view themselves as under attack and say their actions are defensive. They carry weapons because they feel threatened and vulnerable. They use guns or knives to protect themselves.

Both usually see violence as the only means of resolving disputes. Violent young people have learned to be violent in their families and communities. They do not have the skills to deal with angry feelings in any other way.

Youth

Young Americans are often involved in violence—both as perpetrators and as victims. Teen violence is such a serious problem that former U.S. Surgeon General C. Everett Koop called it "an extensive and chronic epidemic in American society."

Arrest records suggest that rates for child and teen violence are climbing. In 1947, only 16% of arrests involved people under 21 years of age; by 1976, it was 60%. In 1988, 1.6 million adolescents were arrested for 69,000 violent crimes. Eighteen thousand were between 10 and 14 years old. A 1987 national survey of 11,000 eighth and tenth grade students in twenty states indicated that nearly 2% had carried guns to school at least once in the previous year.

Young men of all races, classes and lifestyles are apt to engage in violent acts. Non-White males, especially young African Americans, get caught more often.

As more children and youth commit violent acts, more children and youth are killed. Guns are so widely available that many conflicts are settled by bullets instead of punches or just walking away.

According to the National Center for Health Statistics, in 1988 homicide was the second leading cause of death for Americans ages 15 to 24. It was also the fourth leading cause of death for children ages one to four and ages five to fourteen. Teens are twice as likely as adults and ten times more likely than the elderly to become victims of violent crimes. More than half know their assailant.

Teens, as is true of younger children, are less likely than adults to report violence. For every juvenile who is arrested, authorities estimate between eight and eleven serious acts of juvenile violence have occurred.

School Violence

School safety statistics vary widely, but all leave no doubt that violence on school campuses is widespread.

- Approximately 3.3 million crimes are committed in schools each year, with nearly 200,000 injuries.
- 36% of all robberies reported by people ages 12 to 19 occurred in school.
- 50% of all assaults of children ages 12 to 15 took place in schools.
- Students attending schools in Los Angeles, Washington, D.C., New York and other large cities must pass through metal detectors when entering their school buildings.
- Many public schools have instituted dress codes that restrict the colors and types of clothing students may wear because of the association of certain clothing with gangs.

Child Abuse

Child abuse is a reportable crime in every state. The term is applied to physical abuse, psychological or emotional abuse, sexual abuse or sexual exploitation, and neglect. Because child abuse is so broadly defined and underreported, statistics probably seriously underestimate its incidence.

Statistics, which are based on reported incidents, reveal a large and increasing child abuse problem in America. More than 2 million child abuse reports are filed annually, half for neglect. In ten years, the number of cases has risen 184%.

More than 5,000 children die of maltreatment, and this figure is low because many childhood deaths are not recorded as abuse. For example, the role of abuse and neglect may be ignored in deaths from "natural causes" such as malnutrition or pneumonia. A 1985 survey of parents indicated that 11% had used severe violence—hitting, kicking, beating, threatening, or using knives or guns—against their children during the

previous year. The findings suggest that 1.5 million children from birth to age 17 in two-parent families were subjected to severe violence in 1984; only one in seven was reported to child protective services.

The Empathy Connection

Most young people are not violent, and given the option would choose a more peaceful environment.

Still, a large percentage of criminal violence is caused by youth. These youth say violence gets them what they want: respect, revenge, excitement, things they believe they deserve. Conspicuously absent from their descriptions is any note of remorse or of empathy for their victims.

Empathy, the ability to put oneself in another's place, is a socially desirable trait. People who feel for others tend to be good parents, friends and citizens.

Today's violent teens can seldom feel anyone's pain but their own. They see no connection between their acts and the consequences. Violence is their existence.

How does this happen? Research shows three things contribute to the loss of empathy:

- living in a violent environment, including exposure to violence in the media
- lack of nonviolent male role models, especially fathers
- low self-esteem

Nonviolent youth have learned empathy. They understand how their actions affect others and ultimately their own well-being. Teaching young people to empathize may be the best protection against violence.

Causes of Violence

Knowledge about the causes of violence can lead to effective prevention and treatment. However, answering the question of what causes violence is difficult, because violence is a complicated issue.

Aggressive behaviors are grounded in both biological mechanisms and social learning. Neither alone can explain violence. Rather, violence results from a complex interaction of human physiology and environmental factors. Neurology, the study of the brain and nervous system, has yielded some interesting information about violence.

Scientists have learned that aggressive behaviors are triggered in certain parts of the brain and that other parts control violence. If part of the limbic system is damaged, the affected person reacts with rage. For example, this reaction occurs when a person is infected with the virus that causes rabies, a word that literally means rage.

But humans have elaborate systems of behavior beyond the competing mechanisms of the brain. Another part of the brain gives people the ability to identify with the problems of others (empathy), to plan for the needs of others and themselves (logic), and to use knowledge to make positive changes in their environment (creativity). When this higher brain is damaged or blocked, people revert to instinctual, animal-like behaviors.

Although organic brain damage does not explain the majority of violent activities, it may play a significant role in some types of aggressive behavior. For example, babies exposed to crack cocaine prenatally may suffer brain damage that predisposes them to violence. Indeed, studies of such children do indicate high levels of aggression. Injury and disease, both common among people with high rates of violence, may further incapacitate the brain mechanisms that prevent violence.

Many researchers believe people learn violence from watching it happen. People learn that violence is the way to cope with anger and frustration. Children can learn the violence lesson in their families, community and culture.

Families

Children who are abused or witness the abuse of a parent are at risk for becoming violent themselves. An individual who is surrounded by people who act in violent and brutal ways can be expected to act in similar ways. Studies show that almost all delinquents—male and female—were physically or sexually abused at home. Most of them had watched a parent, sibling or another close person violently attacked, sometimes repeatedly, by a family member.

Boys without nonviolent male role models may have a harder time managing their aggression and learning how to express their maleness. Some of these young men may turn to violence to feel more powerful. Others may look to drug dealers or gangs, two groups well known for brutal criminal behavior, to fill the void.

Community

Social and economic changes in recent years have destroyed much of the infrastructure that supports healthy communities and good citizens, including:

- employment
- housing
- education
- health care
- recreation

No community has escaped, but America's cities have been hit hardest. Poverty and lack of opportunity conspire to produce violence. In addition, as institutions and families cease to function, communities can no longer uphold a standard of acceptable behavior. Violence and lawlessness replace security and order. Police cannot stop the crime. Innocent people are killed in the crossfire.

Individuals feel powerless to change the conditions in which they are living. Eventually, it seems that "everybody is doing it," and people expect a life of despair and violence. Violence has become the norm on American streets and in American homes.

Culture

Violence assaults the senses every day in the mass media. The popular culture of the United States—movies, TV drama, toys, talk radio, sports, music—is filled with violent words and pictures.

Protective Factors

A variety of factors can help children mature into strong, competent, healthy adults in spite of severe stress and adversity in their lives. Children who circumvent the negative conditions of their lives are sometimes called *resilient children*. They commonly have the following attributes:

- **social competence**—the ability to establish positive relationships with others
- **problem-solving skills**—the ability to think about and attempt alternate solutions
- **autonomy**—a sense of identity and the ability to act independently
- **sense of purpose and future**—the ability to set goals and believe in the future

The following family characteristics help children cope with adversity and stress. Schools and communities can also serve as sources of these protective factors.

- **Caring and support**—Children form affectionate bonds with at least one person, a family member or other relative or an adult friend or teacher.
- **High expectations**—Adults believe in children's abilities and also provide discipline and clear rules and regulations.
- **Encouraging children's participation**—Adults communicate that children are valued and are capable of contributing to the family, school or community.

Source: B. Benard. 1992. Fostering Resiliency in Kids: Protective Factors in the Family, School and Community. *Prevention Forum* 12 (3): 1–16.

Children and youth see about four hours of action-packed TV every day, programming in which they witness about 100 acts of violence. They play with guns, action toys and gory video games. "Splatter" and "slasher" movies attract cults of teen viewers.

By the time a typical youth reaches age 16, he or she has watched about 200,000 violent acts, including 33,000 murders. Heavy metal and rap music often feature lyrics that are explicitly violent. The media message seems to say that violence is exciting, rewarding and necessary.

Much of the violence portrayed in the media is merged with sex. Not only does this merger blur the line between physical love and pain, but the violence itself is portrayed as glamorous and sexy. As Dr. Deborah Prothrow-Stith (1991) says: "Hot music, fast cuts, lots of action, energy and movement titillate and seduce the viewer."

Research both supports and negates the media's role in causing violence. Clearly, most people do not watch a movie actor commit murder and then kill someone themselves. However, this constant exposure may make a violent reaction more likely should a viewer encounter a social slight or alternative viewpoint. The media does teach that violence is an appropriate way to resolve conflict.

But blaming violence solely on the media is not accurate either. Some researchers believe violent TV and movies provide a safe outlet for aggression. The mass media in Japan has a violence content well above that seen in the United States, yet Japan has one of the lowest rates of violent crime.

Cultural socialization may play a prominent role in promoting violence, particularly sexual violence. American culture raises boys to believe themselves strong, powerful and sexually aggressive. Girls are taught to be sexually alluring, but hard to get. Generally, girls are expected to be more passive and nurturing and less aggressive than boys. As young adults begin to form sexual relationships, the combination of opposing expectations can explode into torture, rape and murder.

Drugs and Violence

Drugs and violence are related in several ways. People who sell drugs may murder and maim to protect profits or territories. Addicts may commit violent crimes to get money to buy drugs. Some drugs act directly on the brain to cause violent behavior. Drugs with a direct link to violent behavior include:

- alcohol
- PCP
- amphetamines
- steroids
- cocaine

- **Alcohol** is the drug most likely to cause violence. It is associated with the three leading causes of death for young people: accidents, homicide and suicide. It is often implicated in crimes such as spousal and child abuse and rape. Alcohol blocks higher brain functions, the very mechanisms that usually moderate anger and violence. Many people behave aggressively after drinking moderate to high doses of alcohol.

- **PCP**, or angel dust, causes the brain to be bathed in large amounts of adrenalin. This effect gives users great physical strength, insensitivity to pain and delusions of power. This combination leads to extreme and bizarre violence.

- **Amphetamines** can lead to violence. Long-term "speed freaks" become paranoid, exhausted and malnourished. They often lash out in uncontrollable fits of rage.

- Athletes who use **steroids** to gain speed, strength and stamina may become violent as a side-effect.

- Heavy **cocaine** users may become psychotic during withdrawal. In the throes of hallucinations and paranoia, addicts will harm themselves and others.

Gang Violence

Gangs are not new. Throughout history, young people, particularly young men (only an estimated 10% of gang members are female), have banded together. These groups satisfy a range of normal adolescent needs, especially the need for peer approval and acceptance.

When young people feel a part of society and hopeful about their future, they form "gangs" that generally have socially positive effects: clubs, fraternities, sororities and other nonviolent groups. Young people who feel alienated and hopeless, however, use gang membership as a vehicle to express rage.

All gangs are potentially violent. When young males come together in a gang, the group can elicit brutal and criminal behavior that individual members would not commit alone. However, less than 10% of youth crime and homicides are gang related. Gang activity increases in communities with little social organization, few jobs, poor schools, high poverty and high rates of substance use.

A few gangs are well organized and sophisticated. Their violence revolves around the lucrative drug trade they control. They closely resemble gangsters in the tradition of organized crime.

Most street gangs, however, are not organized around selling drugs. They exist primarily to provide members a sense of identity, importance and pride. These gangs are territorial; fighting is their major activity, usually among themselves or with other gangs. In the past, the fighting was done with fists; today, guns are the preferred weapon.

The culture of gangs defines a man as someone who is loyal to his friends and ruthless to his enemies, no matter what the consequences. Young men who cannot meet the mainstream requirements for manhood, often due to socioeconomic circumstances, gravitate toward gangs. In the gang context, they need not be employed or support their families to be accepted.

Coping with Violence

Violence is a complex problem without a simple solution. Eliminating violence will not be easy, simple or cheap. Changes must occur at every level of society: individual, family, community, educational and legal systems.

There are two broad overlapping approaches to solving the problem of violence: *prevention*, including conflict resolution, and *intervention and control*.

Prevention

The following suggestions can contribute to violence prevention.

- **Unprepared parents need help.** There is a strong link between dysfunctional parenting and violence. Support and regular visits from trained nurses and other concerned professionals, as well as educational and vocational resources, can help disadvantaged mothers and fathers. Parents should be encouraged to be more actively involved with their children. Curbing the family violence that produces violent children generation after generation must be given top priority.

- **The basic needs of all children must be met.** The nation needs to develop a policy and system that guarantees minimal standards of care for every child. These kinds of services can help at-risk children and improve the overall community health. Needed services include:
  - universal health care, including mental health and counseling services, for families
  - affordable, high-quality childcare
  - nutritional services
  - preschool and after-school programs
  - safe and secure environments

- **Antiviolence education programs in schools need support.** Children should be taught at young ages that violence is not an appropriate way to solve conflicts. They also need skills to constructively handle life's problems. Many of today's youth reach adolescence or adulthood believing that fighting is their only option; they need to be taught alternatives to violent behaviors.

- **Violent children should be identified early.** Very aggressive children are likely to become tomorrow's violent teenagers and adults. Teachers and parents need skills to recognize the warning signs of antisocial behaviors. They also need access to resources and professional services before children resort to violence and crime.

- **Community-based recreational and cultural programs are needed.** Children and youth who feel involved in and connected to their communities are less likely to commit violence. Youth programs can teach cooperation, dedication, discipline and self-esteem while providing a way to stay out of trouble and away from drugs.

- **Career education and mentor programs should be offered to middle and high school age youth.** Youth who develop an ethic of responsibility and job skills and have positive role models are less likely to engage in violent acts.

- **The reality of racism and prejudice must be confronted.** In spite of efforts to reduce discrimination, prejudice is still part of American life. Violence based on prejudice is particularly vicious and appears to be on the rise. Learning more about people of different ethnic backgrounds, religions or sexual orientations can diffuse the perception of "others" as bad, and reduce violence.

- **Violence in the media should be reduced.** If the media would condemn rather than glorify violence, the same way they have responded to smoking and drunk driving, they could make a significant contribution by changing public attitudes about violence. Children and youth can also be taught to understand the destructive role played by media violence.

- **Gun control legislation is needed.** The Prevention Workgroup on Assault and Homicide of the Surgeon General's Workshop on Violence and Public Health recommended a complete and universal federal ban on the manufacture, importation, sale and possession of handguns (except for authorized police and military personnel). Other groups recommend a more moderate approach—for example, banning assault weapons, legislating waiting periods for background checks before guns can be legally purchased, and requiring manufacturers to meet product safety regulations, including child-proofing devices.

- **Conflict resolution skills should be taught.** The skills of conflict resolution can also help reduce violence. Schools are an ideal place to teach children to manage conflict and anger. Educational programs that teach children and youth how to assert their own needs without trampling on the rights of others and how to express their angry feelings without losing control provide important life skills. The goal of conflict resolution training is to teach children and youth how to get along with others without violence.

  All models of conflict resolution share some fundamental themes:

  - Conflict is a normal part of human interaction.
  - People can learn to get along with and enjoy others whose backgrounds and opinions are different.
  - Most disputes do not have clear winners and losers; win/win is the ideal way to resolve most disputes.

- Youth and adults who learn how to respond nonviolently will become neither victims nor bullies.
- Nonviolence skills help build self-esteem.

School-based programs focus on developing two sets of skills within a context of civility. Children and youth learn first to identify whether a particular conflict was resolved aggressively, by avoidance or assertively. They examine the effects of each of these strategies. They learn that aggression rarely succeeds as a long-term solution.

The second group of skills is mediation. Children and youth can be trained to negotiate settlements when disputes break out among peers. They can develop listening and communication skills that provide a workable model of successful nonviolent intervention.

Intervention and Control

Prevention strategies pave the way for a violence-free future, but do not solve the current problem. The following suggestions can help change the way violent offenders are dealt with today.

- **Alcohol and other drug use treatment:** Drug addiction and drug use play a significant role in violent crime. Law enforcement efforts, while necessary, cannot reduce crime without a greater societal investment in treatment and education.

- **Neighborhood crime watch programs:** People need to feel actively involved in restoring order in their communities. Parents, social agencies and churches are now taking action by reporting drug sales and other crimes. People can be empowered to take back their streets.

- **Follow-up support to violence victims who are treated in emergency rooms:** Assault victims are at highest risk for future violence both as repeat victims and perpetrators. Proper questioning by the medical staff and referral for counseling could very effectively interrupt the cycle of violence.

- **Relationships between law enforcement officials and the community:** In many communities, the relationship between law enforcers and the community has become antagonistic. Police officers often see only a hostile attitude. They may feel betrayed by the very people they risk their lives to protect. Many people blame the police for causing violence and failing to make their communities safe.

  Much of the mutual antagonism stems from simple lack of personal contact. When officers are placed on foot patrol or included in local planning activities, they can help facilitate community development. Police officers then become part of the community they serve, neighbors and partners in the effort to reduce crime and violence.

- **Reform of the legal system:** Some people believe that punishment, swift and consistent incarceration, serves as a deterrent to crime. However, although today there are more people in prison than ever before, the rate of violence is increasing, not declining.

  Unfortunately, many troubled young people are served by multiple agencies, which may not communicate with each other. The first indications of a troubled child may be noticed by the school, but school personnel may not know how to help the child.

  Such children may be seen simultaneously by the mental health system, the social welfare system and the public health department. All of these agencies keep their records confidential and seldom coordinate their efforts.

By the time these children are in serious trouble with the juvenile justice system, they may have a long history of fragmented and counter-productive interventions by a variety of agencies. Such fragmented services are a costly and ineffective way of providing needed services. Cross-agency collaboration, joint case management and shared interventions could provide much more effective interventions.

Suggested legal changes include:

- **Making jail a last resort for violent young people.** Studies show delinquents end up more violent and crime-prone after incarceration. Mandatory attendance in violence prevention classes, fines, community service and victim restitution programs are more successful deterrents to future violent crimes.
  - — A study of almost 900 teens in six cities showed that juveniles who had to pay back their victims or do community service committed fewer crimes later when compared to imprisonment and probation together.
  - — In Massachusetts, the most dangerous youths are sent to secured treatment centers in which they receive counseling, educational and vocational training, and therapy to change their behavioral responses. Between 1978 and 1984, juvenile crime fell 26%, and the number of offenders who went on to become adult criminals dropped by one-half.
  - — In Los Angeles, convicted gang members are sentenced to work in a facility for handicapped children. They earn high school credit and work experience, but more important, they learn they have the ability to make choices and do something useful.
- **Decreasing the time between arrest and sentencing.** By the time of sentencing under the current system, the crime is often long forgotten and dissociated from the punishment.

1-Minute Facts

- Violence is the threat or use of force that injures or intimidates a person or damages property.
- More than 2 million Americans are victims of violent injury each year.
- Although violence is overwhelmingly a male phenomenon, the rate of violence among females is increasing.
- Half of all homicides involve family members or friends.
- Many researchers believe people learn violence from watching violence.
- Some drugs act directly on the brain to cause violent behavior.
- Gang membership satisfies a range of normal adolescent needs, especially the need for peer approval and acceptance.
- To prevent violence, changes must occur at every level of society: individual, family, community, educational and legal systems.

SUICIDE

MYTH: People who talk about taking their own lives never do it.

Fact: People who talk about suicide frequently attempt it. Suicidal acts rarely occur without warning signs. Talk of taking one's life is the chief danger sign and should never be ignored.

Suicide is generally viewed as both a mental health and public health problem. Although attempting suicide is not considered a criminal activity, helping someone kill himself or herself is against the law.

Suicide ranks among the ten most common causes of death in industrialized countries, including Finland, Austria, Denmark, Sweden, Japan and the United States. Experts estimate that every day more than 1,000 people worldwide kill themselves.

Each year in the United States, more than 30,000 people commit suicide. Some studies indicate that the actual numbers of suicide deaths may be as much as 25% to 50% higher due to underreporting. Because the cost, both in terms of personal grief to families and productivity to society, is so great, suicide has become the focus of serious scientific and public health concern.

Counting Suicide Fatalities

Each year, the National Center for Health Statistics compiles suicide statistics, but even the center's experts concede that the numbers are consistently too low. Why?

Coroners and medical examiners use different definitions of suicide, require different evidence (for example, some certify suicide only if a note is found), and may yield to family or community pressures. Not all suicides are obvious. Is a drug overdose unintentional or is it suicide? What about a single-car traffic fatality with no clear cause of the crash?

Perhaps the biggest reason that suicide is underreported is shame. In an attempt to prevent the behavior, society has judged people who attempt or complete suicide as "bad." Suicide has been judged the "coward's way out." Family members of victims may be considered inadequate. This tradition of blame has made suicide a taboo topic for discussion and investigation.

Inadequate reporting has an important practical impact. Statistics are used to allocate resources, provide direction for research, and create public health policy. A clear, consistent definition of the behavior and the elimination of the shame attached to it would help determine the scope of the problem and initiate effective interventions.

Who Commits Suicide?

Suicide cuts across all age, ethnic, occupational, religious and social groups. However, the fact that people who take their own lives belong more frequently to certain groups suggests that social and cultural factors may play a significant and complex role in this behavior. These factors include:

- gender
- age
- ethnicity
- alcohol use

■ **Gender:** The number of completed suicides is much higher among males than females, although women are three times more likely to attempt it. Women have tended to use less lethal means, for example, drugs or wrist slashing; however, the use of firearms among female suicides is climbing. Men, who comprise about three-fourths of all victims, tend to use guns.

■ **Age:** Suicide in the United States is increasingly a problem of adolescents and the very old. In general, risk increases with age, with people over 65 most likely to take their own lives. Older people actually attempt suicide less often than those in other age groups, but complete the act more frequently.

Suicide is now the second leading cause of death among persons ages 15 to 24. The rate has more than tripled since 1970; more than 6,000 young Americans now take their own lives each year. When this figure is added to the number of young men and women killed on our highways and by violent criminal acts, the loss of life in this age group is staggering.

In 1970, the use of firearms in youth suicide began a sharp and sustained increase. Suicide by gun rose three times faster than other methods among 15 to 19 year olds and ten times faster for 20 to 24 year olds.

In addition to completed suicides, attempted suicide is a serious problem among adolescents. Roughly 20 to 25 attempts, three times more than the estimated national average, occur for every death. Surveys indicate about 10% of all teens and young adults have tried suicide at least once.

Suicide deaths among young children are rare, but suicidal behavior is not. As many as 12,000 children ages five to fourteen are hospitalized nationally each year for deliberate self-destructive acts such as stabbing, scalding, burning, jumping from high places and drug overdoses. Sadly, attempted suicide in this age group is also on the rise.

Attempted Suicide

Research findings suggest those who attempt suicide and those who complete suicide may represent two different, although overlapping, groups.

It is not known how many people attempt to kill themselves. Unlike suicide deaths, attempts are not legally reportable events. However, based on surveys, attempts are about eight times more common than completed suicides. It costs about $116.4 million a year to provide health care for people who have attempted suicide.

An unsuccessful suicide attempt may not reflect a desire to die as much as the desire to live a different life. The behavior is a dramatic signal of a serious problem that demands immediate attention.

The problems of those who attempt suicide are generally similar to those who complete the act and those who die of natural causes. To an objective outsider, these people's problems do have solutions. From the inside, however, the situation seems hopeless.

Different psychiatric conditions have been linked to different suicidal behaviors. People who attempt suicide but do not die are more likely to be depressed, suffer from personality or anxiety disorders, or be chemically dependent. Those who actually die tend to be victims of major depression, alcoholism or other drug addictions, and schizophrenia.

- **Ethnicity:** The suicide rate for White Americans is almost twice that of African Americans. However, suicides among young urban African Americans are increasing at an alarming rate. To date, there is little known about why ethnic differences exist regarding suicidal behaviors.

  Among minority groups, suicide is highest for Native Americans. Although the rate has dropped from a high of 21 deaths per 100,000 in 1975 to about 13 per 100,000 today, the rate is still higher than the general population. Experts suggest several factors are related to the high rate among Native American people:
  - conflict resulting from difficulty relating to the dominant American culture
  - rapid social change, which has caused breakdown and disorganization of tribal systems
  - unemployment as high as 80% for some tribes
  - high rates of alcoholism and other drug addiction

- **Alcohol use:** Alcoholics have extremely high rates of suicide. It is estimated that up to 20% of alcoholics kill themselves, compared to about 1% of the general population.

  The use of alcohol has been linked to many kinds of violence, including suicide. Teens who drink are three times more likely than nondrinking adolescents to take their own lives. Alcohol may eliminate inhibitions that keep people from acting to hurt themselves.

Causes of Suicide

Risk factors can influence the rate of suicide in a population, but they say little about what causes an individual to take his or her life. Suicide is a complex behavior determined by a mix of factors, including:

- **biology**—the physical brain
- **genetics**—the predisposition to certain inherited diseases
- **psychology**—the personality and mind
- **sociology**—forces in society and the external environment

In studying people who attempt or complete suicide, only one feature is apparent in all cases. People who kill themselves suffer from serious mental illnesses, which in turn influence their thoughts, feelings and behaviors regarding suicide.

Traumatic Events and Suicide Risk

The following events may contribute to suicide risk:

- recent loss of a family member through death or divorce
- natural disaster such as flood, earthquake, hurricane or tornado
- recent loss of a romantic partner
- pregnancy
- child abuse, incest, sexual assault
- moving to a new town or school
- any event, situation or change that involves loss, change or readjustment accompanied by feelings of helplessness, hopelessness and powerlessness

Source: N. Burton, 1990, *Entering Adulthood: Understanding Depression and Suicide.* Santa Cruz, CA: ETR Associates.

The human brain has chemicals that regulate the way people perceive and react to the world. *Serotonin* is a brain chemical, or *neurotransmitter*, known to be important in controlling aggression in general. Brain injury or stress can trigger the brain to produce insufficient amounts of serotonin. The imbalance causes feelings of powerlessness and hopelessness and can eventually lead to self-directed violent behavior.

People affected by this imbalance become so focused on their terrible emotional pain that they can't see alternatives or believe others can love or want them. They can't think straight because their brains are no longer functioning normally. Death from this type of mental illness is called suicide.

About 10% of suicides result from bipolar disorder (manic depression) and schizophrenia. A small number occur with anxiety disorders and substance use.

However, the vast majority of suicidal individuals suffer from undiagnosed major depression. Symptoms of major depression include:

- inability to feel pleasure
- preoccupation with sad thoughts
- irritability, crying
- feelings of helplessness, worthlessness and hopelessness
- withdrawal and isolation
- loss of energy
- inability to concentrate
- self-neglect and loss of interest in surroundings
- loss of interest in favorite things
- physical complaints such as headaches or gastrointestinal problems
- sleep difficulties, insomnia or excessive sleeping
- appetite disorders, weight loss or overeating
- loss of interest in sex
- thoughts of suicide

Not every person with major depression will have all of these symptoms at the same time or to the same degree.

Victims may not be obviously unhappy. Young people may display "acting out" behaviors such as defiance, rebelliousness, disobedience, running away from home, drinking or drug taking, refusal to go to school and failing grades.

Diagnosis of major depression is possible, but most people are not trained to detect it. The symptoms may be ignored because everybody experiences one or more of them occasionally. For example, a spouse who is overworked may feel tired and not be interested in having sex. Headaches are common and usually don't signify mental illness. However, an individual who experiences four or more of the symptoms of major depression for more than two weeks should see a psychiatrist or mental health professional. This disorder can be successfully treated with medication and psychotherapy.

Treatment

People suffering from depression and other mental illnesses and those who have attempted suicide can be helped. Effective treatments that will restore wellness include:

- psychotherapy
- drug therapy
- electroconvulsive therapy (ECT)

■ **Psychotherapy:** There are many different psychotherapies, including brief treatments aimed at undoing the thought distortions and repairing the broken relationships frequently associated with suicide-prone individuals. Therapies could be short-term or long-term. They may involve the individual, family members or a group of individuals with similar problems.

There are therapeutic strategies for retraining patients whose ability to manage problems and interact with people may have been eroded by years of inappropriate behavior. Depression can make a person become so withdrawn that important social skills need to be relearned.

- **Drug therapy:** Doctors began using drugs to treat mental illnesses in the 1950s. Today these medicines have been greatly improved, both in their effectiveness and reduction of side-effects. Major depression is treated with antidepressants, which stabilize mood and relieve many depressive symptoms, including thoughts of suicide. Bipolar disorder is controlled with lithium, and several antipsychotic drugs are available for schizophrenia.

  None of these medications is addicting, nor do they produce intoxication or "highs." Standard treatment plans include the prescribed drug in combination with some form of psychotherapy.

- **Electroconvulsive therapy (ECT):** Psychiatrists have long recognized ECT as a safe, painless and effective treatment for depression. However, the public perception of electric shock and the availability of antidepressant drugs has led to limited use of the procedure. But it does work quickly to change life-threatening moods, so psychiatrists do use ECT when immediate relief is necessary.

Suicide Clusters

Suicide cluster is a term applied to the independent or collaborative actions of a group of people in a defined geographic area who kill themselves within a specified time period. Victims are usually young.

Scientists have only been studying the cluster phenomenon since 1980. The deaths by suicide of twenty youths in Fairfax County, Virginia, during a single academic year prompted the investigation.

Researchers believe that suicidal behavior in susceptible individuals may be triggered by learning about the suicide death of another person. Some evidence supports this theory.

- Newspaper accounts of a previous teen suicide are often found among the effects of a later suicide victim.
- Following 38 nationally televised reports about suicide in 1986, teens killed themselves at significantly higher rates during the next week than would be expected.
- About 20% of those who take their own lives had a family member or close friend who committed suicide.

On the other hand, learning about suicide in general or watching fictional and dramatic presentations do not seem to trigger the behavior. These events seem actually to reduce attempts by educating people about suicide's symptoms and treatments. Open discussion of the topic may allow people who are considering suicide the opportunity to seek help.

Schools need to review and adopt specific guidelines for crisis management in cases of student suicide. Pre-planning can effectively prevent "copy cat" suicides and help manage the publicity and media attention.

The national Centers for Disease Control and Prevention (CDC) has established guidelines to cope with suicide clusters. Critical elements include:

- identification of at-risk populations prior to crisis
- identification and assessment of community resources
- coordinated efforts to locate those at risk after a crisis has begun
- careful dissemination of public information in ways that do not glamorize those who commit suicide

School administrators should work closely with mental health professionals in the community to coordinate services and referrals. Resources such as public health departments, social service agencies and mental health centers can provide assistance.

Warning Signs for Suicide

Suicidal behavior is on a continuum from zero to a hundred—with only one hundred as death. Every behavior up to one hundred is a frantic and ultimately despairing effort to find a solution other than death.

Most people who speak or write about suicide begin with the danger signs of suicide, but this is way too late. The danger signs are up about 95 on that behavior continuum. Suicidal behavior below 95 is trivialized as "not serious," ignored, scoffed at, and punished with humiliation, shame and silence.

To reduce suicide, one has to start back on the continuum at 20 or 25 when the first symptoms of mental illness are seen, and then treat the illness medically and psychologically.

—Adina Wrobleski

Rarely does a suicide occur without warning. Within the context of an individual's environment, including traumatic events or recent changes in his or her life, any of the following danger signs, alone or in combination, can be serious indications of possible suicide:

- Threats of suicide or statements indicating a desire for death.
- A previous suicide attempt without treatment.
- Giving away personal belongings.
- Excessive risk taking or other life-threatening behaviors.
- Preoccupation with aspects of death or the impact of death on others.
- Self-destructive or self-punishing behaviors; self-mutilation.
- Leaving notes, diaries and letters where they can be found and read by others. The contents of such writings usually suggest suicidal thoughts or feelings of despair and hopelessness.
- Visits or calls to important people in one's past.

Special attention must be given to people within the school community who were friends of the suicide victim. Counseling programs can be developed to help students and staff manage their grief and stress appropriately and to help quickly if a personal crisis develops.

When resources permit, schools can employ mental health counselors who are available to students on an ongoing basis. On-site access to mental health services can help prevent episodes of minor depression from escalating into serious depression.

Suicide Prevention and Intervention

If suicide is thought of as a process rather than an event, there are many points at which intervention can take place. Intervention can be broad-based, such as education and legislation, or individual, such as crisis skills and mental health services. No one strategy alone will prevent suicide; only a combined effort will reduce the tragic loss of life through suicide.

Suicide, like the taboo subjects of rape and incest, must be discussed openly. For too long, people have not had the opportunity to talk or learn about this topic. This lack of discussion has promoted shame, fear and ignorance, which has contributed to the rising tide of death by suicide, especially among the young.

Community attitudes about this problem may be changing. Individuals, families and friends who have lost a loved one by suicide are talking about their losses. Sharing their experiences can help others recognize when someone they know may be at risk.

There has been a growing recognition of mental illness as a treatable medical condition. Suicide, like alcoholism, is not caused by poor parenting or weak character. "Good" people

and "bad" people take their own lives. The general public can and should learn to recognize the signs of depression and be knowledgeable about its treatment.

Accurate, timely and valid data about the true occurrence of suicide is needed. Coroners, medical examiners and other officials whose judgment can affect how a death is classified should be trained to recognize suicide. A uniform definition of suicide must be established.

A community-based surveillance system for monitoring suicide attempts would yield important information that is currently unavailable. A more accurate reporting system would allow educators and public health policy makers to create effective prevention programs.

Educators have a special opportunity to reduce youth suicides. Teachers at every level, including college, should learn to identify students at risk and make appropriate referrals for treatment. It is unrealistic, however, to expect educators to develop these skills without adequate support and training. Teachers are not mental health experts. Programs need to be developed that offer information, structure and guidance to the teaching community, and financial resources must be allocated to make this happen.

Stress Management

Teaching skills to cope with stress is an important step toward preventing suicide. Skills can be defined as specific methods that can be taught and learned that help individuals adapt to life's inevitable stressors and maintain wellness. Stress management skills include:

- time management
- communication techniques
- assertiveness training
- decision making
- balanced nutrition
- physical fitness
- relaxation techniques
- spiritual reflection

- positive scripting
- visualization techniques
- positive relationship building
- vocational training

Elementary and secondary students are an ideal audience for skills training through comprehensive school health education programs.

Reducing the Availability of the Means of Suicide

Legislative and community actions that reduce the availability of the means of suicide do reduce the incidence of the behavior. For example, suicide by carbon monoxide poisoning from cooking gas was the most common method of suicide in Britain before 1975. At that time, manufacturers switched from coal- and petroleum-based gases to natural gas, which does not contain carbon monoxide. Suicide rates dropped by 35% after the change and were not offset by an increase in the use of other means. This example suggests that when a common and culturally acceptable means of suicide becomes unavailable, many would-be suicides will not choose an alternative method, and death is prevented.

In the United States, firearms are the preferred method of suicide. Based on the British experience, handgun control could have a significant impact on the rate of suicide, as well as reducing the incidence of other violent crimes.

Other suggestions include:

- anti-suicide barriers and nets at well-known jump sites
- tighter prescription drug restrictions
- automatic ignition systems on gas ovens and heaters
- automatic devices that turn off car engines when dangerous levels of carbon monoxide build up inside the car

Community Services

Providing coordinated community-based services, including outreach, has shown promise as an effective suicide intervention. For example, many communities have suicide prevention hotlines. These emergency telephones provide anonymous access to trained crisis counselors.

In Poughkeepsie, New York, a hotline phone was installed on the Mid-Hudson Bridge, where each year an average of five people had jumped to their deaths. In less than two years, the phone was used thirty times, and 23 of the callers were apprehended and treated. The success of hotlines suggests that if the opportunity exists, many would-be suicides will reach out for help.

Hospital and clinic programs designed to treat people who have attempted suicide could substantially reduce the chance these high-risk individuals will complete suicide in the future. Accurate identification of those who attempt suicide is critical, as is proper mental health assessment, appropriate referral, treatment and follow-up. The few programs currently available show promise, but more research is necessary to determine which modes of treatment are most effective with specific populations.

Where to Get Help in a Crisis

Someone considering suicide should be encouraged to contact people or agencies such as the following for help.

- parent
- teacher
- school counselor
- psychologist
- social worker
- coach
- nurse
- psychiatrist
- family physician
- clergy
- suicide hotline
- mental health clinic
- hospital
- police department
- 911
- health department
- domestic violence shelter
- crisis center

Personal Crisis Intervention

Perhaps the most important intervention is knowing how to deal with a depressed and suicidal individual. Mental health experts at the U.S. Public Health Service offer the following suggestions.

- **Listen:** If a friend or family member appears depressed and exhibits any of the warning signs for suicide, let her or him talk about those feelings. A troubled person needs someone who will listen. It may not be easy to discuss a friend's or relative's suicidal thoughts, but it is critical for the person to be able to talk about why he or she wants to die. Try to understand the problems behind the statements. Show interest, but don't make judgments and don't try to talk the person out of it.

- **Ask questions:** Ask specific questions about the person's suicidal intentions. Do you have a plan? Have you bought a gun? Where is it? What kind of pills do you have? Contrary to popular myth, such candor will not encourage suicide.

- **Evaluate:** It is possible for a person to be extremely upset but not suicidal. Often, if a person has been depressed, and then becomes very agitated and moves about restlessly, it can be cause for alarm. If the person has made clear suicide plans, the problem is more acute than if her or his thinking is less definitive.

- **Be supportive:** Let the person know you care. Break through the suicidal person's sense of isolation, stay close and make the person understand he or she is not alone. Assure the person that suicidal impulses are temporary, that depression can be treated and that problems can be solved.

- **Take charge:** Emphasize that help is at hand, and waste no time finding it. Don't worry about invading someone's privacy. Since suicidal people don't believe they can be

helped, urging them to seek professional help is not enough. Make the call yourself. Enlist the support of other family members or friends. **Do not wait.**

- **Make the environment safe:** Remove any weapons and ammunition, medication or other drugs, and household items such as knives, razors or scissors that could be used as aids to suicide. Don't just hide them; make sure they are gone from the premises completely.

- **Do not keep suicide a secret:** Suicide talk, threats or plans are signals for help. Sometimes distraught individuals will confide in a friend about their intentions by swearing the friend to secrecy. This is not a test of friendship that should remain secret. This is an emergency.

- **Do not dare, challenge or try verbal shock treatment:** It's wrong to think that telling an ambivalent suicidal person to go ahead and commit suicide will shock him or her into rational thinking. This can lead to tragedy. Instead, acknowledge the person's feelings, and reassure him or her that help is available and the situation can be resolved. If the crisis is acute, **do not leave the person alone**.

- **Seek professional help:** Don't try to handle the problem alone. Get in touch with a physician or mental health professional. Start with the person's family doctor, a local hospital or mental health center. Call the local suicide prevention hotline or crisis intervention center. Call the police.

- **Make a contract:** If you find yourself with a person who is obviously suicidal, and you need time to develop a plan of action, make a contract with that person. That is, get a commitment or promise, preferably in writing, that he or she will not attempt suicide before you are able to get together again and talk it over.

- **Beware of elevated moods and quick recoveries:** Elevated mood can sometimes be misleading. Individuals may wrestle with the idea of suicide and, after having made a decision to kill themselves, behave as though they have had a heavy burden lifted from their shoulders. They then proceed to kill themselves, leaving everyone who had assumed they were on the road to recovery stunned.

- **Follow up:** Some individuals experience psychological relief after sharing their problems with an empathetic listener and erroneously feel that the crisis is over. But the crisis flares up again later. Follow-up is critical to any prevention effort.

  Remember, you can best help by:
  - taking the problem seriously
  - being a good friend by listening
  - assuring the person that something can be done
  - getting the person to a professional for help

1-Minute Facts

- Suicide ranks among the ten most common causes of death in industrialized countries.

- Social and cultural factors may play a significant and complex role in suicidal behavior.

- People who commit suicide suffer from serious mental illness that can be treated with medication and psychotherapy.

- Schools need to review and adopt specific guidelines for crisis management in cases of student suicide.

- If suicide is thought of as a process rather than an event, intervention can take place at many points.

Responding to Injuries

Myth: Some people are just "accident prone," and nothing can be done about it.

Fact: Some people do appear to experience more injuries than others. For some, the increased injury rate is the result of engaging in high-risk behaviors in their jobs or their recreational activities. They can be taught to change their behaviors or to use protective equipment. Other people may be distracted by concealed emotional or physical factors, causing them to bump into or trip over things. They may need help to deal with the underlying problems.

An *acute injury* is defined as an insult to the body that results in a need for immediate treatment. Examples of acute injuries include:

- foreign objects in the ear, nose or eye
- choking
- scrapes to large areas of the skin
- deep cuts with blood loss
- possible broken bones
- soft tissue damage with swelling
- burns
- inhalation or swallowing of a substance that may be poisonous
- breathing difficulty associated with bee or insect stings

Acute injuries often cause panic in both the victim and the attending adults, especially when there is a lot of blood or difficulty in breathing. In all cases, adults must remain calm while trying to put the injured person at ease.

Very few acute injuries result in serious long-term consequences, but impulsive actions might turn a minor injury into a major one. The American Academy of Pediatrics recommends that all schools have a plan for the immediate treatment and mobilization of injured persons. The academy supports the development of a *triage plan* that describes the severity of injury and indicates the recommended course of action. Categories range from those conditions requiring an urgent response and immediate medical referral, such as a neck or back injury, to those conditions classified as minor, such as nosebleeds or abrasions, which can be handled by a trained staff person.

Because some action has to be taken with every injury, adults who supervise children and youth must have a basic understanding of first aid. The American Red Cross offers programs that teach first-aid skills appropriate for managing most acute injuries that may occur in a school setting. This organization also provides a list of the appropriate items to be included in an emergency kit or first-aid room.

If there is any doubt about the seriousness of an acute injury, the local emergency response system should be contacted. In many areas of the United States, the number *911* will provide direct access to a trained professional who can provide specific guidance on how to handle an injured person.

Sports-Related Acute Injuries

Many of the acute injuries sustained by school-age children and youth happen during sports and recreational activities. Many of these injuries can be prevented through proper conditioning and the use of protective equipment.

Many adolescents, especially young males, consider it "uncool" to admit to an injury. Professionals who coach or supervise recreational activities should take the following steps to protect young athletes.

- Establish a relationship with young athletes that encourages them to report injuries, even if it will mean not continuing with the game.
- Develop a routine of physical conditioning that ensures that athletes have the level of fitness appropriate for the level of exertion.
- Observe the behavior of athletes to pick up signs that an injury might have occurred.
- Devise a referral system with local physicians who will examine an athlete to determine whether an injury is serious.
- Develop a monitoring system to identify patterns of injuries that might be symptomatic of underlying problems.

Responding to Physical and Sexual Abuse

Sometimes injuries are symptoms of other problems. Particular patterns of injuries are associated with child sexual and physical abuse and should raise the suspicion of mistreatment.

Children who appear to have a pattern of injuries that escalate in severity over time are likely to be experiencing

some form of violation to their bodies. Some visual signs of abuse include burns, welts and bruises, especially those that appear to be caused by belts, cigarettes and scalding.

Children and youth who experience forms of abuse will often attempt to hide their injuries from siblings, friends and adults. They may wear clothing that seems inappropriate for the weather or event. Girls may wear excessive make-up to cover injuries to the face and neck.

When asked about their condition, abused children may offer unbelievable stories to explain why they have experienced these injuries. Adults should refer children to the school counselor or social worker for further evaluation if they have any concerns about the origins of a child's injuries.

Children who have experienced sexual abuse may seem oddly precocious for their age. They may demonstrate through their language or their behavior that they have an understanding of sexual functioning incongruous with their developmental stage.

Such behavior is often referred to as *sexual acting-out behavior*. It may include behaviors such as using sexual innuendoes, acting seductively and exhibiting sexually explicit gestures.

Sexually abused children may also show signs of physical injury to the mouth, anus or genitals. Such signs include excessive rubbing or touching of the genital area, facial expressions that indicate pain when sitting or walking, and voicing complaints about pain when using the toilet.

The actual determination of abuse requires a qualified professional assessment. School personnel and other adults who care for children should have a system of referral for children and youth whose behaviors may indicate the presence of abuse. All schools should have a referral system for suspected abuse cases that includes professionals who are trained in evaluating abuse.

Stress and Injury

Studies have shown that when people are under stress, they are more apt to be involved in an injury-producing event. Highly stressed individuals have a difficult time paying attention to their immediate surroundings. Children or youth who appear to experience more injuries during sports or recreational activities than their friends may be experiencing stress in their lives. For example, if a football player always seems to get hurt on the day before the big game, the coach might suspect that something such as a parental divorce is absorbing the athlete's attention.

Even children who seem to experience excessive numbers of minor injuries, such as paper cuts and stubbed toes, could be signaling that they are experiencing a lot of stress in their lives. Young women may seek health care for a number of incidental wounds or complaints before disclosing to the doctor or nurse that they think they are pregnant.

When children and youth seem to experience a pattern of injuries, whether minor or severe, the adults who care for them need to look into the presence of underlying conditions that may be contributing to the problem. These children and youth may need referrals to mental health professionals who can help them deal with the underlying problems.

A Healthy School Environment

The health of students, faculty and staff can be affected by the environment that surrounds them. The environment of the school influences the health, behavior, disposition, comfort, safety and efficiency of the people who work and study in its buildings.

Schools that permit the use of tobacco products in any form by anyone are giving tacit support to the use of an addictive substance. Schools that overlook the use of alcohol

by students are implying approval of its use. On the other hand, schools that take strong stands against the use of tobacco and alcohol assume a responsible position as proponents of healthy children and youth.

The aesthetics and utility of the school plant are also important environmental characteristics of a school facility. The attractiveness of a school can instill a sense of pride and esprit de corps in the people who work and learn in its classrooms. A physical plant that supports learning through adequately sized hallways, classrooms and laboratories, accessible facilities for all persons regardless of disability, and clean, uncluttered grounds makes a positive statement about the importance of education.

Student, faculty and community "ownership" of the school is a pivotal element of educational endorsement. Feelings of pride in one's school go hand in hand with valuing the learning that takes place there.

The American Academy of Pediatrics recommends routine examinations of the physical school plant for potential injury-producing hazards. The academy also recommends that the physical plant be assessed for ways to reduce the potential for violence.

The safety of the school environment is a serious responsibility of all school personnel. It should not be relegated to just the administrative or custodial staff.

All schools should have a safety plan for physical plant maintenance, as well as natural disasters, local catastrophes such as facility fires or laboratory explosions, and violence prevention. The following components should be included in routine safety and violence prevention reviews:

- parking area—for adequate lighting, space and street access
- playground equipment and grounds—for safe playing surfaces, equipment in good repair
- science, shop, art and home economics laboratories—for safety equipment; obsolete chemicals; gas, power and

water valves; proper ventilation; out-dated equipment
- floor, stairs and ramps—for non-skid surfaces and hand rails
- gymnasium and athletic fields—for first-aid supplies, shower facilities, protective mats and equipment, ruts and pot holes, bleacher stability
- cafeteria—for proper working equipment, storage of cleaning products, grease disposal
- fire alarms and extinguishers—for proper working order and maintenance
- hallways—for adequate lighting and floor or wall hazards/projections
- lockers—for sharp edges
- low, overhanging eaves, ceilings and beams—for adequate identification
- bus operations—for safety
- rest rooms—for lighting and waste disposal
- classrooms—for appropriate space and evacuation procedures

This list, although long, is by no means comprehensive. Individual schools may have very different physical arrangements and require different safety review procedures. For example, schools that have swimming pools or ice rinks need to include those areas in their safety reviews. Other schools may need to deal with the presence of gangs and weapons on campus.

Although each school and community is unique, with distinct characteristics, no school is exempt from its responsibility to ensure a healthy and safe environment. Each year, thousands of children are intentionally and unintentionally injured at school. Most of these injuries are preventable. Yet, often a serious event must occur before action is taken. The importance of a safety review should be clear long before severe injury to students or school staff occurs.

1-Minute Facts

- An acute injury is an injury that needs immediate attention.
- All schools should have a plan for treating acute injuries that occur at school.
- Particular patterns of injuries may be associated with child abuse.
- A pattern of injuries can indicate that children are experiencing other problems.
- All schools should promote a healthy environment through health-enhancing tobacco and alcohol policies, attractive grounds and routine safety assessments.

Glossary

A

abuse—A pattern of violence occurring in the course of a relationship.

accident—An event beyond the individual's or society's control; implies an unavoidable event.

acute injury—An insult to the body that results in the need for immediate treatment.

B

bipolar disorder—A mental illness characterized by alternating periods of depression and mania; manic depression.

C

CDC—Centers for Disease Control and Prevention, a federal agency based in Atlanta that studies and monitors the incidence and prevalence of diseases in the United States. It provides health and safety guidelines for the prevention of disease.

H

homicide—The killing of one person by another.

I

injury—Unintentional or intentional damage to the body resulting from acute exposure to thermal, mechanical, electrical or chemical energy or from the absence of such essentials as heat or oxygen.

intentional injury—Injuries that are deliberately inflicted, such as murder or suicide.

intervention—A specific prevention measure or activity.

N

neurologic—Pertaining to the nervous system or brain.

neurotransmitter—Chemical messengers that allow communication between nervous system cells.

O

outcome evaluation—A process that seeks to measure progress toward the achievement of a goal.

P

paraplegia—Paralysis of the lower half of the body.

process evaluation—A method of documenting the achievement of program activities.

Q

quadriplegia—Paralysis of the body from the neck down.

R

risk—The likelihood of injury, damage or other negative consequences following an action.

risk factor—A characteristic that has been demonstrated to be associated with a particular injury or disease.

S

schizophrenia—A chronic disorder that involves a group of brain diseases.

serotonin—A neurotransmitter that is important in controlling aggression.

stress—The feeling of being under pressure; bodily wear and tear caused by physical or psychological arousal by outside events.

suicide—The act of intentionally killing oneself.

suicide cluster—A group of suicides and/or attempted suicides that occur closer in time and space than would normally be expected in a community.

T

triage—The classification of injuries according to medical need and the matching of the injured with available resources for care.

U

unintentional injury—Injuries that are not deliberately inflicted, or "accidents," such as falls or automobile crashes.

V

violence—The threat or use of force that injures or intimidates a person or damages property.

Resources

Alcohol Abuse Emergency
24-Hour Hotline
800-ALC-OHOL

American Alliance for Health,
Physical Education, Recreation
and Dance
1900 Association Dr.
Reston, VA 22091
703-476-3400

American Association of Poison
Control Centers
Georgetown University Hospital
3800 Reservoir Rd. NW
Washington, DC 20007
202-784-4666

American Association of
Suicidology
2459 S. Ash
Denver, CO 80222
303-692-0985

American Humane Association
Children's Division
63 Inverness Dr. East
Englewood, CO 80112
303-792-9900

American Medical Association
Department of Health Education
515 N. State St.
Chicago, IL 60610
312-464-5000
Customer service: 800-621-8335

American Psychiatric Association
1400 K St. NW
Washington, DC 20005
202-682-6000

American Psychological
Association
750 First St. NE
Washington, DC 20002
202-336-5500

American Public Health Association
1015 15th St. NW
Washington, DC 20005
202-789-5600

American School Health Association
P.O. Box 708
Kent, OH 44240
216-678-1601

American Social Health Association
P.O. Box 13827
Research Triangle Park, NC 27709
919-361-8400

Boating Accident Report System
United States Coast Guard
G-NAB-5
2100 2nd St. SW
Washington, DC 20593
202-267-0949

Bureau of Maternal and Child Health and Resources Development
United States Public Health Service
Parklawn Building, Room 18A-39
5600 Fishers Lane
Rockville, MD 20857
301-443-4026

Center for Injury Prevention
Building One, Room 306
San Francisco General Hospital
San Francisco, CA 94110
415-821-8209

Center for Injury Research, Control and Education
Given Medical Building, Room B227
University of Vermont
Burlington, VT 05405
802-656-2528

Center for Prevention of Injury and Violence
University of Texas/Houston School of Public Health
P.O. Box 20186
Houston, TX 77225
713-792-4404
fax: 713-794-4877

Centers for Disease Control and Prevention (CDC)
1600 Clinton Rd. NE
Atlanta, GA 30333
404-639-3311

Clearinghouse on Child Abuse and Neglect Information
P.O. Box 1182
Washington, DC 20013
800-394-3366

Consumer Product Safety Commission
5401 Westbard Ave., Room 332
Bethesda, MD 20207
Hotline: 800-638-2772

Harborview Injury Prevention and Research Center
Harborview Medical Center
325 9th Ave., ZX-10
Seattle, WA 98104
206-521-1520

Indian Health Service
Office of Planning, Evaluation and Legislation
Division of Program Statistics
Parklawn Building, Room 641
5600 Fishers Lane
Rockville, MD 20857
301-443-1180

Injury Control Research Center
University of Alabama at Birmingham
UAB Station/CHSB19, Suite 403
Birmingham, AL 35294-2041
205-934-7845

Injury Prevention Research Center
Department of Surgery
University of Colorado Health Sciences Center
4200 East 9th Ave.
Denver, CO 80262
303-270-8055

Justice Research and Statistics Association
444 North Capitol St. NW, Suite 445
Washington, DC 20001
202-624-8560

National Burn Registry
National Burn Information Exchange
National Institute for Burn Medicine
909 East Ann St.
Ann Arbor, MI 48104
313-769-9000

National Capital Poison Center
Georgetown University Hospital
3800 Reservoir Rd. NW
Washington, DC 20007
202-625-3333

National Center for Health Statistics
6525 Belcrest Rd., Room 1064
Hyattsville, MD 20782
301-436-8500

National Center for Injury Prevention and Control
4770 Buford Highway, K60
Atlanta, GA 30341
404-488-4646

National Child Abuse and Neglect Data System
Technical Assistance
P.O. Box 2668
Gaithersburg, MD 20886
301-869-0098
fax: 301-330-2015

National Clearinghouse for Criminal Justice Information Systems
7311 Greenhaven Dr., Suite 145
Sacramento, CA 95831
916-392-2550

National Coalition Against Domestic Violence
P.O. Box 18749
Denver, CO 80218
303-839-1852

National Crime Prevention Council
1700 K St. NW, 2nd Floor
Washington, DC 20006
202-466-6272

National Criminal Justice Reference Service
Bureau of Justice Statistics
Box 6000
Rockville, MD 20850
800-732-3277

National Fire Incident Reporting System
National Fire Data Center
United States Fire Administration
16825 South Seton Ave.
Emmitsburg, MD 21727
301-447-1349

National Football Head and Neck Injury Registry
c/o University of Pennsylvania Sports Medicine Center
Weightman Hall E-7
235 South 33rd St.
Philadelphia, PA 19104
215-662-6943

National Health Information Center
Office of Disease Prevention and Health Promotion
P.O. Box 1133
Washington, DC 20013
800-336-4797

National Highway Traffic Safety Administration
Research and Development
400 7th St. SW, Room 6206
Washington, DC 20590
202-366-1537

National Highway Traffic Safety Administration
Traffic Safety Programs
NTS-1
400 7th St. SW, Room 5125
Washington, DC 20590
202-366-1755

National Injury Information Clearinghouse
U.S. Consumer Product Safety Commission
5401 Westbard Ave., Room 625
Washington, DC 20207
301-504-0424
Hotline: 800-638-2772

National Institute of Mental Health
Information Resources and Inquiries Branch, Room 7C-02
5600 Fishers Lane
Rockville, MD 20857
301-443-4513

National Organization for Victim Assistance
1757 Park Rd. NW
Washington, DC 20010
202-232-6682

National Pediatric Trauma Registry Department of Rehabilitation Medicine
New England Medical Center
750 Washington St.
Boston, MA 02111
617-956-5031

National Resource Center for Child Abuse and Neglect
(Operated by American Humane Association)
63 Inverness Dr. East
Englewood, CO 80112
800-227-5242

National Safety Council
1121 Spring Lake Dr.
Itasca, IL 60143-3201
708-285-1121

National School Safety Center
4165 Thousand Oaks Blvd.,
Suite 290
Westlake Village, CA 91362
805-373-9977
fax: 805-373-9277

National Self-Help Clearinghouse
25 W. 43rd St., Room 620
New York, NY 10036
212-354-8525

National Traumatic Occupational
Fatalities Surveillance System
National Institute for Occupational
Safety and Health
Division of Safety Research
944 Chestnut Ridge Rd.
Morgantown, WV 26505
304-284-5722
Hotline: 800-35-NIOSH

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Women and Violence Policy Program
Center for Women Policy Studies
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